UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II

IN THE MATTER OF THE DIAMOND HEAD OIL REFINERY SUPERFUND SITE	
Hudson Meadows Urban Development Corporation Respondent	Index No. II CERCLA-
Proceeding under Sections 104 and 122 of the Comprehensive Environmental Response, Compensation and Liability Act, as amended, 42 U.S.C. §§ 9604, 9622.	

TABLE OF CONTENTS

ADMINISTRATIVE ORDER ON CONSENT FOR REMEDIAL INVESTIGATION/FEASIBILITY STUDY

I. INTRODUCTION

This Administrative Order on Consent ("Consent Order" or "Order") is entered into voluntarily by the United States Environmental Protection Agency ("EPA") and the above-captioned Respondent (hereinafter, "Respondent"). The Consent Order concerns the preparation and performance of a remedial investigation and feasibility study (hereinafter, the "the RI/FS") concerning the Diamond Head Oil Refinery Superfund Site (hereinafter, the "Site") in the Town of Kearny, Hudson County, New Jersey. This Consent Order also concerns reimbursement by Respondent to EPA for certain costs which have been and will be incurred by EPA in connection with the Site.

II. JURISDICTION

1. This Consent Order is issued to Respondent pursuant to the authority vested in the President of the United States under Sections 104(a) and (b), 122(a) and (d)(3) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended ("CERCLA"), 42 U.S.C. §§ 9604(a) and (b), 9622(a) and (d)(3), which authority was delegated to the Administrator of EPA on January 23, 1987 by Executive Order 12580, 52 Fed. Reg. 2926 (1987), and further delegated to the Regional Administrators of EPA on September 13, 1987, by EPA Delegation 14-14-C.

2. Respondent agrees to undertake all actions required by the terms and conditions of this Consent Order. Respondent consents to and agrees not to contest the authority or jurisdiction of the Regional Administrator of EPA Region II to issue or enforce this Consent Order, and also agrees not to contest the validity or terms of this Consent Order in any action to enforce its provisions.

III. PARTIES BOUND

3. This Consent Order shall apply to and be binding upon the Respondent and its successors and assigns. Respondent agrees to instruct its officers, directors, employees and agents involved in the performance of the work required under this Order to cooperate in carrying out the obligations of Respondent under this Order. Respondent agrees that its officers, directors, employees and agents involved in the performance of the work required by this Order shall take all necessary steps to accomplish the performance of said work in accordance with this Order. Respondent is jointly and severally responsible for carrying out all actions required of it by this Consent Order. The signatories to this Consent Order certify that they are authorized to execute and legally bind Respondent to this Consent Order. No change in the ownership or corporate status of

Respondent or of its facilities or the Site shall alter Respondent's responsibilities under this Consent Order.

4. Respondent shall provide a copy of this Consent Order to any subsequent owners or successors before ownership rights or stock or assets in a corporation are transferred. Respondent shall provide a copy of this Consent Order to all contractors, subcontractors, laboratories, and consultants which are retained to conduct any work performed under this Consent Order, within fourteen (14) days after the effective date of this Consent Order or the date of retaining their services, whichever is later. Respondent shall condition any such contracts upon satisfactory compliance with this Consent Order. Notwithstanding the terms of any contract, Respondent is responsible for compliance with this Consent Order and for ensuring that its employees, contractors, consultants, subcontractors and agents comply with this Consent Order.

IV. STATEMENT OF PURPOSE

5. In entering into this Consent Order, the objectives of EPA and the Respondent are: (a) to determine the nature and extent of contamination and any threat to the public health, welfare, or the environment caused by any release or threatened release of hazardous substances, pollutants, or contaminants in connection with the Site, by conducting a remedial investigation; (b) to determine and evaluate, through the conduct of a feasibility study ("FS"), alternatives for the remediation or control of any release or threatened release of hazardous substances, pollutants or contaminants in connection with the Site; and (c) to provide for the reimbursement to EPA of certain response costs which have been and will be incurred by EPA with respect to the Site.

6. The activities conducted under this Consent Order are subject to approval by EPA and shall provide all appropriate necessary information for the RI/FS (with the exception of the Baseline Risk Assessment performed by EPA) and for a Record of Decision that is consistent with CERCLA and the National Oil and Hazardous Substances Pollution Contingency Plan ("NCP"), 40 C.F.R. Part 300. The activities conducted by or on behalf of Respondent under this Consent Order shall be conducted in compliance with all applicable EPA guidances, policies, and procedures and any amendments thereto.

V. FINDINGS OF FACT AND CONCLUSIONS OF LAW

7. The Site is located at the intersection of Harrison Avenue and Ramp M of Route 280 in Kearny, Hudson County, New Jersey. The Site is bounded by Harrison Avenue to the north, Route 280-Ramp M to the east, Route 280 to the south, and the Campbell Distribution Foundry to the west.

8. The Site is located in the Hackensack Meadowlands, which act as a habitat for transient Federal and State listed endangered or threatened species. The Meadowlands also consist of numerous wetland areas which exist along the coastal tidal waters in the area of the Site. There are no known drinking water wells within 4 miles of the Site, nor are there any known drinking water intakes or fisheries located in surface waters within 15 miles downstream of the Site.

9. This Site consists of approximately 15 acres of land comprised of parcels known as Block 285, Lots 3, 14, and 15 on the municipal tax maps of the Town of Kearny. There is no residence, school, or day care facility within 200 feet of the Site.

10. The Site is inactive and completely fenced, with the exception of a break in the fence along the eastern border, and the access road is blocked at Harrison Avenue by a dirt berm and concrete debris. The Site is comprised of wetland areas and drainage ditches, a small pond, a vegetated landfill area along the western portion of the Site, and the remnants of the former Diamond Head Oil Refinery on the eastern portion. The abandoned refinery portion of the Site now contains various construction debris including the concrete foundations of the former on-site building and two former above-ground storage tanks.

11. The Site was in operation from February 1, 1946 to early 1979. The Diamond Head Oil Refining Company, Inc. operated an oil reprocessing facility at the Site from 1946 until November 1, 1973. From 1973 until November 3, 1976, PSC Resources, Inc., a subsidiary of the Phillips Screw Company, Inc., continued to operate the reprocessing facility on the Site under the name Diamond Head Oil Refining Company, Inc., Division of PSC Resources, Inc. In 1976 the facility was purchased by Ag-Met Oil Service, Inc., which continued the collection, refining, and recycling of liquid oily waste into fuel oil and lubrication oil. On November 18, 1976, Ag-Met Oil Service, Inc. changed its name to Newton Refining Corporation and was issued a one-year New Jersey Department of Environmental Protection ("NJDEP") Temporary Operating Authorization (TOA) to operate a Special Waste Facility under the name Diamond Head Oil Refinery Division as a waste oil reprocessor on the Diamond Head Site. Sometime in 1982, Newton Refining Corporation became a wholly-owned subsidiary of Refinement International Company. The name of the facility remained Diamond Head Oil Refining Division and the expiration date on the TOA was April 30, 1979 or when engineering designs for the facility were submitted and approved or denied. All of the above-named companies were owned by a Mr. Robert Mahler. In January 1985, Newton Refining Corporation sold the Site to Mimi Urban Development Corporation. On August 23, 1985 Mimi Urban Development Corporation changed its name to Hudson Meadows Urban Renewal Development corporation and is the present owner of the Site.

12. During facility operations, two above-ground storage tanks (allegedly with volumes of 30,000 and 100,000 gallons) and possibly underground pits were used to store oily waste. These wastes were intermittently discharged directly to adjacent properties, including the wetland area to the south of the Site, creating an `oil lake'. The New Jersey Department of Transportation (NJDOT) acquired the property to the south of the Site on March 6, 1968. In 1977, NJDOT began construction of I-208 and was reported to have removed 9 million gallons of oil-contaminated water and 5 to 6 million cubic yards of oily sludge from the lake.

13. NJDOT filed suit against PSC Resources, Inc. on September 14, 1977 to recover the cost of the clean-up. It is also reported that during the construction of I-280, an `underground lake' of oil-contaminated groundwater was found extending from the eastern limits of the NJDOT right-of-way to Frank's Creek on the west.

14. From the close of operations in 1979 until 1982 the abandoned Site was not completely fenced. During this time, it is reported that dumping of waste oils and other debris took place on site. Refinement International Co. hired Eastern Chemical Cleaning Co. to clean up the Site in May 1982. In order to do so, the material in the tanks was analyzed and was found to contain 206 parts per million (ppm) of polychlorinated biphenyls (PCBs). Later analyses revealed levels of PCBs to be over 3,100 ppm. Approximately 7,500 gallons of material was pumped out of the tanks and disposed of off site at a Resource Conservation and Recovery Act (RCRA) permitted facility.

15. Environmental Transport also removed approximately 27 tons of contaminated soil in May 1982. Analysis of a sample collected from this soil indicated the presence of lead at a concentration of 32 ppm.

16. The New Jersey Department of Environmental Protection (NJDEP), Division of Waste Management collected six surface soil samples and two water samples from areas of visual contamination at the Site on May 1, 1985. These samples were analyzed for volatile organics, acid compounds, pesticides, PCBs, metals, cyanides, and phenols. The following contaminants were detected in soil:

a. Toluene, at concentrations up to 40.52 ppm,
b. Benzene, up to 16.96 ppm,
c. 1,1-Dichloroethane, up to 0.942 ppm,
d. Ethylbenzene, up to 6.02 ppm,
e. Phenanthrene, up to 1,487 ppm,
f. Fluoranthrene, up to 601 ppm, and
g. Pyrene, up to 1,130 ppm.

17. EPA conducted a sampling site inspection at the Site on July 1 and 2, 1991, during which four groundwater, three surface water, three sediment, seven surface soil, one subsurface soil, three liquid waste, and two solid waste samples were collected. This activity took place after an on-site reconnaissance, during which extensive areas of orange and black stained soil were observed at various occasions across the Site.

18. Analyses of the soil samples indicated the presence of significantly elevated concentrations of numerous volatile and semivolatile organic compounds, pesticides, PCBs, and metals in the areas of the stained soil and the oil lake.

19. Results of the groundwater samples collected from the monitoring wells located in the eastern portion of the Site indicate the presence of volatile and semivolatile organics, and PCBs.

20. Visual observation of samples collected from one of the monitoring wells indicated that a layer of contamination was present on top of the groundwater in the well. Analytical results of samples collected from this layer of contamination indicate the presence of various contaminants not normally associated with petroleum products.

21. Soil samples collected from the wetland area in the southern portion of the Site indicate contamination of this wetland area by contaminants attributable to the Site.

23. The following is a brief summary of the analytical data for the soil samples:

a. Volatiles (maximum concentrations in ppm): Trans-1,2-dichloroethene (total) (0.053), trichloroethene (46), benzene (0.550), 4-methyl-2-pentanone (0.230), tetrachloroethene (0.099), toluene (0.840), ethylbenzene (0.830), and xylenes (total) (2.7); and

b. Inorganics (maximum concentrations in ppm): Aluminum (22,900), arsenic (58.7), barium (4,630), cadmium (31), calcium (66,000), cobalt (63.5), copper (1,080), iron (64,400), lead (76,200), magnesium (23,400), manganese (1,040), nickel (266), silver (88.5), zinc (5,550), and cyanide (4.2).

24. The following is a brief summary of the analytical data for the sediment samples:

a. Inorganics (maximum concentrations in ppm): Aluminum (8200), arsenic (15.4), barium (327), cadmium (5.7), calcium (4,740), copper (339), iron (19,300), lead (905), magnesium (2,470), manganese (318), nickel (53.2), and zinc (770).

25. The following is a brief summary of the analytical data for the solid waste samples:

a. Inorganics (maximum concentrations in ppm): Aluminum (63,595), antimony (34.3), arsenic (26), barium (717), calcium (7,462), chromium (156), iron (31,227), lead (616), magnesium (6,706), manganese (299), sodium (10,618), and zinc (853).

26. The following is a brief summary of the analytical data for the surface water samples:

a. Inorganics (maximum concentrations in µg/l): Arsenic (20), lead (324), and cyanide (12).

27. The following is a brief summary of the analytical data for the groundwater samples:

a. Volatiles (maximum concentrations in µg/l): Vinyl chloride (12), 1,1-dichloroethane (21), trans-1,2-dichloroethene (total) (18), trichloroethene (11), benzene (30), 2-hexanone (25), 4-methyl-2-pentanone (98), toluene (160), chlorobenzene (160), ethylbenzene (23), and xylenes (total) (140);

b. Semivolatiles (maximum concentrations in µg/l): 2-Methylphenol (310), 4-methylphenol (900), 2,4-dimethylphenol (390), benzoic acid (130), naphthalene (39), and 2-methylnaphthalene (22); and

c. Inorganics (maximum concentrations in µg/l): Arsenic (46), lead (319), and cyanide (30).

28. The following is a brief summary of the analytical data for the liquid waste samples:

a. Volatiles (maximum concentrations in µg/l): Toluene (105), ethylbenzene (90), and xylenes (total) (514);

b. Semivolatiles (maximum concentrations in µg/l): Naphthalene (232), 2-methylnaphthalene (427), alpha-BHC (132), phenanthrene (124), fluoranthene (119), and pyrene (109); and

c. Inorganics (maximum concentrations in µg/l): Barium (882), beryllium (9.8), calcium (2,357), iron (518), lead (621), manganese (29.3), sodium (470), vanadium (80.7), and zinc (197).

29. The Site constitutes a "facility" within the meaning of Section 101(9) of CERCLA, 42 U.S.C. §9601(9).

30. There have been and continue to be releases and/or threats of releases, within the meaning of Section 101(22) of CERCLA, 42 U.S.C. §9601(22), of hazardous substances into the environment at and from the Site.

31. Respondent is a "person" within the meaning of Section 101(21) of CERCLA, 42 U.S.C. §9601(21). Respondent accordingly is a responsible party under Sections 104, 107 and 122 of CERCLA, 42 U.S.C. §§9604, 9607, and 9622.

32. Respondent has been given an opportunity to discuss with EPA the basis for issuance of this Consent Order and its terms.

33. The actions required by this Consent Order are necessary to protect the public health or welfare or the environment, are in the public interest, are consistent with CERCLA and the NCP, and are expected to expedite effective remedial action and minimize litigation.

VI. NOTICE

34. By providing a copy of this Consent Order to NJDEP, EPA is notifying the State of New Jersey (the "State") that this Consent Order is being issued and that EPA is the lead agency for coordinating, overseeing, and enforcing the response action required by this Consent Order.

VII. WORK TO BE PERFORMED

35. All work performed under this Consent Order shall be under the direction and supervision of qualified personnel. Within fourteen (14) days of the effective date of this Consent Order, Respondent shall provide written notice to EPA of the names, titles, and qualifications of the personnel, including contractors, subcontractors, consultants and laboratories, to be used in carrying out such work. The qualifications of the persons undertaking the work for the Respondent shall be subject to EPA review for verification that such persons meet minimum technical background and experience requirements. The Consent Order is contingent upon Respondent's demonstration to EPA's satisfaction that Respondent is qualified to perform properly and promptly the actions set forth in the Consent Order. If EPA disapproves, in writing, of any person(s)' technical qualifications, Respondent shall notify EPA of the identity and qualifications of the replacement(s) within fourteen (14) days of the written notice. If EPA subsequently disapproves of the replacement(s), EPA reserves the right to terminate this Order and to conduct a complete RI/FS, and to seek reimbursement for costs and penalties from Respondent. During the course of the RI/FS, Respondent shall notify EPA in writing of any changes in or additions to the personnel used to carry out such work, and provide their names, titles, and qualifications. EPA shall have the right to approve changes in and additions to personnel.

36. Respondent shall conduct the work required hereunder in accordance with CERCLA, the NCP, and guidance which EPA identifies to Respondent, including, but not limited to, the Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA (OSWER Directive No. 9355.3-01) (hereinafter, the "RI/FS Guidance"), Guidance for Data Useability in Risk Assessment (OSWER Directive #9285.7-05), guidance referenced therein, as they may be amended or modified by EPA, and the Statement of Work (SOW) attached hereto as Appendix 1 which will be deemed to be incorporated by reference herein. The activities and deliverables identified below shall be developed as provided for in the SOW and shall be submitted to EPA. All work performed under this Consent Order shall be in accordance with the schedules herein, and in full accordance with the schedules, standards, specifications, and other requirements of the SOW, RI/FS Work Plan and Field Operations Plan, as approved by EPA, and as they may be amended or modified by EPA prior to completion of the RI/FS. For purposes of this Consent Order, day means calendar day unless otherwise noted in this Consent Order.

a. Task I: Scoping. As part of the scoping activities, Respondent shall provide EPA with the following deliverables:

1. Work Plan and Field Operations Plan. Within fourteen (14) days of the effective date of this Consent Order, Respondent shall submit to EPA a draft Work Plan and Field Operations Plan (FOP). The Work Plan shall include a description of the work to be performed and the schedule for the RI/FS. The schedule shall provide for completion of the RI/FS for the Site within 12 months of EPA approval of the Work Plan. The FOP shall consist of a Field Sampling and Analysis Plan ("FSAP") and a Quality Assurance Project Plan ("QAPP"), and a Health and Safety Plan ("HSP") as described in EPA guidance. If EPA disapproves of or requires revisions to the Work Plan and/or FOP, in whole or in part, Respondent shall amend and submit to EPA a revised plan which is responsive to the directions in all EPA comments, within twenty-one (21) days of receiving EPA's comments.

A. The FSAP shall include:

i. Site background;

ii. Sampling objectives;

iii. Sample locations and frequencies, including a map depicting sampling locations, and the rationale for each location;

iv. Sample designation;

v. Sampling equipment and procedures; and

vi. Sample handling and analysis.

B. The QAPP shall include:

i. Title and approval sheet;

ii. Table of contents and document control format;

iii. Distribution list;

iv. Project/task organization;

v. Problem definition/background;

vi. Project/task description and schedule;

vii. Quality objectives and criteria for measurement data;

viii. Project narrative;

ix. Special training requirements/ certifications;

x. Documentation and records;

xi. Sampling process design;

xii. Sampling methods requirements;

xiii. Sample handling and custody requirements;

xiv. Analytical methods requirements;

xv. Quality control requirements;

xvi. Instrument/equipment testing, inspection, and maintenance requirements;

xvii. Instrument calibration and frequency;

xviii. Inspection/acceptance requirements for supplies and consumables;

xix. Data acquisition requirements;

xx. Data management;

xxi. Assessments and response actions;

xxii. Reports to management;

xxiii. Data review, validation and verification requirements;

xxiv. Validation and verification methods; and

xxv. Reconciliation with data quality objectives.

C. The QAPP shall be completed in accordance with the EPA publication Test Methods for Evaluating Solid Waste ("SW846") (November 1986, or as updated) and the EPA documents entitled, Guidance on Quality Assurance Project Plans, USEPA/600/R-98/018 (February 1998 or as updated), Guidance for Preparation of Combined Work/Quality Assurance Project Plans for Environmental Monitoring (USEPA, Office of Water Regulations and Standards, May 1984), and EPA Region II QA Manual (October 1989, or as updated).

D. Respondent shall use Quality Assurance/Quality Control ("QA/QC") procedures in accordance with the QAPP submitted and approved by EPA pursuant to this Order, and shall use standard EPA Chain of Custody procedures, as set forth in the National Enforcement Investigation Center Policies and Procedures Manual, as revised in November 1984, the National Enforcement Investigations Center Manual for the Evidence Audit, published in September 1981, and SW-846, for all sample collection and analysis activities conducted pursuant to this Order. In addition, Respondent shall:

i. Ensure that all contracts with laboratories used by Respondent for analysis of samples taken pursuant to this Order provide for access for EPA personnel and EPA-authorized representatives to monitor any work related to the Site;

ii. Ensure that laboratories utilized by Respondent for analysis of samples taken pursuant to this Order perform all analyses according to accepted EPA methods. Accepted EPA methods consist of EPA Drinking Water Method 524.2 and those methods which are documented in the "Contract Lab Program Statement of Work for Inorganic Analysis" and the "Contract Lab Program Statement of Work for Organic Analysis," dated February, 1988 (or as updated), or any alternative method

U. S. ENVIRONMENTAL PROTECTION AGENCY
REGION II
290 BROADWAY, 19TH FLOOR
NEW YORK, NY 10007

EMERGENCY AND REMEDIAL RESPONSE DIVISION

FACSIMILE COVER SHEET

TO: **Arthur Bergman**

201-488-6541

FROM: **Grisell Díaz-Cotto, EPA**

212-637-4430 (office)

DATE: **12/3/98**

NUMBER OF PAGES (INCLUDING COVER SHEET): 55

NOTES/COMMENTS:

Attached is a copy of the AOC/SOW which I have drafted regarding the Diamond Head Oil Site. An official copy will follow with an appropriate cover letter.

Before I finalize, however, I have one question. Would your client be willing to perform the risk assessment for the Site? Doing so should greatly expedite completion of the RI/FS, providing the risk assessment is done per EPA guidance. It would also eliminate the need for 2 additional deliverables. Please advise ASAP since I will need to modify certain sections of the AOC and SOW accordingly. Thank you.

********** -COMM.JOURNAL- ********** DATE DEC-03-1998 ***** TIME 14:43 *** P.01
MODE = MEMORY TRANSMISSION START=DEC-03 14:39 END=DEC-03 14:43
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that has been approved by EPA for use during this project;

iii. Ensure that all laboratories used by Respondent for analysis of samples taken pursuant to this Order participate in an EPA Contract Lab Program ("CLP"), or CLP-equivalent, QA/QC program; and

iv. Ensure that the laboratories used by Respondent for analysis of samples taken pursuant to this Order perform satisfactorily on Performance Evaluation samples that EPA may submit to those laboratories for purposes of insuring that the laboratories meet EPA-approved QA/QC requirements.

E. Health and Safety Plan. The HSP shall conform to 29 CFR §1910.120, "OSHA Hazardous Waste Operations Standards," and the EPA guidance document, "Standard Operating Safety Guidelines" (OSWER, 1988).

2. Following approval or modification by EPA, the FOP shall be deemed to be incorporated into this Consent Order by reference.

b. Task II: Community Relations Plan. EPA will develop a site-specific community relations plan and make revisions to this plan as necessary and in accordance with EPA guidance and the NCP. To the extent requested by EPA, Respondent shall provide information supporting EPA's community relations programs.

c. Task III: Site Characterization. Following EPA's written approval or modification of the Work Plan and FOP, Respondent shall implement the provisions of the RI/FS Work Plan and the FOP to characterize the nature, quantity, and concentrations of hazardous substances, pollutants, or contaminants in connection with the Site. Respondent shall provide EPA with validated analytical data within forty-five (45) days of each sampling activity, in an electronic format (i.e., WordPerfect version 6.0 or latest on 3.5" computer disk and Geographic Information System (GIS) software ArcView version 7.1 or ArcInfo version 3.0), in a form showing the location, medium and results. Within seven (7) days of completion of field activities, Respondent shall so advise EPA in writing. Within thirty (30) days of submission to EPA of the final set of validated field data, Respondent shall submit to EPA a Site Characterization Summary Report. Within fourteen (14) days after Respondent's submittal of the Site Characterization Summary Report, Respondent shall make a presentation to EPA and the State on the findings of the Site Characterization Summary Report and discuss EPA's and the State's preliminary comments and concerns associated with the Site

that has been approved by EPA for use during this project;

iii. Ensure that all laboratories used by Respondent for analysis of samples taken pursuant to this Order participate in an EPA Contract Lab Program ("CLP"), or CLP-equivalent, QA/QC program; and

iv. Ensure that the laboratories used by Respondent for analysis of samples taken pursuant to this Order perform satisfactorily on Performance Evaluation samples that EPA may submit to those laboratories for purposes of insuring that the laboratories meet EPA-approved QA/QC requirements.

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c. Task III: Site Characterization. Following EPA's written approval or modification of the Work Plan and FOP, Respondent shall implement the provisions of the RI/FS Work Plan and the FOP to characterize the nature, quantity, and concentrations of hazardous substances, pollutants, or contaminants in connection with the Site. Respondent shall provide EPA with validated analytical data within forty-five (45) days of each sampling activity, in an electronic format (i.e., WordPerfect version 6.0 or latest on 3.5" computer disk and Geographic Information System (GIS) software ArcView version 7.1 or ArcInfo version 3.0), in a form showing the location, medium and results. Within seven (7) days of completion of field activities, Respondent shall so advise EPA in writing. Within thirty (30) days of submission to EPA of the final set of validated field data, Respondent shall submit to EPA a Site Characterization Summary Report. Within fourteen (14) days after Respondent's submittal of the Site Characterization Summary Report, Respondent shall make a presentation to EPA and the State on the findings of the Site Characterization Summary Report and discuss EPA's and the State's preliminary comments and concerns associated with the Site

Characterization Summary Report. If EPA disapproves of or requires revisions to the Site Characterization Summary Report, in whole or in part, Respondent shall amend and submit to EPA a revised Site Characterization Summary Report which is responsive to the directions in all of EPA's written comments within twenty-one (21) days of receipt of EPA's comments.

d. Task IV: Identification of Candidate Technologies. An Identification of Candidate Technologies Memorandum shall be submitted by Respondent within thirty (30) days of Respondent's submission to the EPA of the last set of validated analytical results. The candidate technologies identified shall include innovative treatment technologies (as defined in the RI/FS Guidance) where appropriate. If EPA disapproves of or requires revisions to the technical memorandum identifying candidate technologies, in whole or in part, Respondent shall amend and submit to EPA a revised technical memorandum identifying candidate technologies which is responsive to the directions in all EPA comments, within fourteen (14) days of receiving EPA's written comments.

e. Task V: Treatability Studies. At EPA's request, Respondent shall conduct treatability studies, except where Respondent can demonstrate to EPA's satisfaction that they are not needed. The major components of the treatability studies should include a determination of the need for and scope of studies, the design of the studies, and the completion of the studies.

If requested by EPA to undertake treatability studies, Respondent shall provide EPA with the following deliverables:

1. Treatability Testing Statement of Work. If EPA determines that treatability testing is required and so notifies Respondent, Respondent shall, within fourteen (14) days thereafter, submit to EPA a Treatability Testing Statement of Work.

2. Treatability Testing Work Plan. Within thirty (30) days of submission of the Treatability Testing Statement of Work, Respondent shall submit a Treatability Testing Work Plan, including a schedule. Upon its approval by EPA, said schedule shall be deemed incorporated into this Order by reference. If EPA disapproves of or requires revisions to the Treatability Testing Work Plan, in whole or in part, Respondent shall amend and submit to EPA a revised Treatability Testing Work Plan which is responsive to the directions in all EPA comments, within twenty-one (21) days of receiving EPA's comments.

3. Treatability Study QAPP, FSAP, and HSP. Within thirty (30) days of the identification by EPA of the need for a separate or revised QAPP, HSP, and/or FSAP, Respondent shall

submit to EPA a revised QAPP, HSP and/or FSAP, as appropriate. If EPA disapproves of or requires revisions to the revised QAPP, HSP, and/or FSAP, in whole or in part, Respondent shall amend and submit to EPA a revised treatability study QAPP, HSP, and/or FSAP, which is responsive to the directions in all EPA comments, within twenty-one (21) days of receiving EPA's comments.

4. Treatability Study Evaluation Report. Within thirty (30) days of completion of any treatability testing, Respondent shall submit a Treatability Study Evaluation Report to EPA. If EPA disapproves of or requires revisions to the Treatability Study Evaluation Report, in whole or in part, Respondent shall amend and submit to EPA a revised Treatability Study Evaluation Report which is responsive to the directions in all EPA comments, within twenty-one (21) days of receiving EPA's comments.

f. Task VI: EPA's Baseline Risk Assessment. EPA will prepare a Baseline Risk Assessment for the Site which shall be incorporated by the Respondent into the RI. To the extent requested by EPA, Respondent shall provide information needed for EPA's risk assessment. The major components of the Baseline Risk Assessment include contaminant identification, exposure assessment, toxicity assessment, and human health and ecological risk characterization.

EPA will provide sufficient information concerning the baseline risks such that Respondent can begin drafting the Feasibility Study report. This information will generally include a list of the chemicals of concern for human health and ecological effects and the corresponding toxicity values; and the current and potential future exposure scenarios, exposure assumptions, and exposure point concentrations that EPA plans to use in the Baseline Risk Assessment. The public, including the Respondent, may comment on these memoranda. However, EPA is obligated to respond only to significant comments that are submitted during the formal public comment period. After considering any significant comments received, EPA will prepare a Baseline Risk Assessment report based on the data collected by the Respondent during the Site Characterization and provide that information to Respondent in a timely manner. EPA will release this report to the public at the same time it releases the final RI report. Both reports will be put into the Administrative Record for the Site.

EPA will respond to all significant comments on the Baseline Risk Assessment that are submitted during the formal comment period in the Responsiveness Summary of the ROD.

g. Task VII: Remedial Investigation Report. Within twenty-one (21) days after EPA's submittal of the Baseline Risk Assessment report to Respondent, Respondent shall submit to EPA a draft RI

report consistent with the RI/FS Work Plan and FOP and the RI/FS Guidance. If EPA disapproves of or requires revisions to the RI report, in whole or in part, Respondent shall amend and submit to EPA a revised RI report which is responsive to the directions in all EPA's written comments, within twenty-one (21) days of receiving EPA's comments. Respondent may invoke the Dispute Resolution procedures set forth in Section XVII below in the event of a dispute between Respondent and EPA regarding EPA's disapproval of or required revisions to the RI report.

h. Task VIII: Development of Remedial Action Objectives, and Development and Screening of Alternatives. Respondent shall develop remedial action objectives and develop and screen remedial alternatives. Within thirty (30) days after EPA's submittal of the Baseline Risk Assessment to the Respondent or within thirty (30) days after EPA's approval of Respondent's Treatability Study Evaluation Report (if treatability studies are undertaken), whichever is later, Respondent shall make a presentation to EPA and the State during which Respondents shall identify the remedial action objectives and summarize the development and preliminary screening of remedial alternatives. Respondent shall address any comments made by EPA during this presentation in the FS Report.

i. Task IX: Draft Feasibility Study Report. Within thirty (30) days of the Task VIII presentation to EPA, Respondent shall submit to EPA a draft FS report which reflects the findings in EPA's Baseline Risk Assessment. Respondent shall refer to the RI/FS Work Plan and the RI/FS Guidance for report content and format. Within fourteen (14) days of submitting the draft FS report, Respondent shall make a presentation to EPA and the State at which Respondent shall summarize the findings of the draft FS report and discuss EPA's and the State's preliminary comments and concerns associated with the draft FS report. If EPA disapproves of or requires revisions to the draft FS report, in whole or in part, Respondent shall amend and submit to EPA a revised draft FS report which is responsive to the directions in EPA's comments, within twenty-one (21) days of receiving EPA's written comments. Respondent may invoke the Dispute Resolution procedures set forth in Section XVII below in the event of a dispute between Respondent and EPA regarding EPA's disapproval of or required revisions to the FS report.

37. EPA reserves the right to comment on, modify and direct changes for all deliverables. Respondent must fully correct all deficiencies and incorporate and integrate all information and comments supplied by EPA either in subsequent or resubmitted deliverables.

38. Respondent shall not proceed further with any subsequent activities or tasks until receiving EPA approval for the following deliverables: RI/FS Work Plan, FOP, Treatability Testing Work Plan, and Treatability Study FSAP and QAPP (if

treatability study work is required to be undertaken). While awaiting EPA approval of these deliverables, Respondent shall proceed with all other tasks and activities which may be conducted independently of these deliverables, in accordance with the schedule set forth in this Consent Order.

39. For all remaining deliverables not enumerated above in the previous paragraph, Respondent shall proceed with all subsequent tasks, activities and deliverables without awaiting EPA approval on the submitted deliverable. EPA reserves the right to stop Respondent from proceeding further, either temporarily or permanently, on any task, activity or deliverable at any point during the RI/FS.

40. In the event that Respondent amends or revises a report, plan or other submittal upon receipt of EPA comments, if EPA in its discretion subsequently disapproves of the revised submittal or any portion thereof, or if subsequent submittals do not fully reflect EPA's directions for changes, EPA retains the right in its sole discretion to seek stipulated or statutory penalties, perform its own studies, complete the RI/FS (or any portion of the RI/FS) under CERCLA and the NCP, and seek reimbursement from the Respondent and/or other potentially responsible parties for its costs; and/or seek any other appropriate relief.

41. In the event that EPA takes over some of the tasks, but not the preparation of the RI and FS reports, Respondent shall incorporate and integrate information supplied by EPA into the final RI and FS reports.

42. The failure of EPA to either expressly approve, disapprove, or comment upon Respondent's submissions within a specified time period(s) shall not be construed as approval by EPA.

43. Respondent shall assure that all work performed, samples taken and analyses conducted conform to the requirements of the RI/FS Work Plan, the EPA-approved QAPP and guidances identified therein. Respondent shall assure that field personnel used by Respondent are properly trained in the use of field equipment and in chain of custody procedures.

44. All materials removed from the Site shall be disposed of or treated at a facility in accordance with Section 121(d)(3) of CERCLA, 42 U.S.C. Section 9621(d)(3), and the NCP. All disposal of materials conducted by the Respondents pursuant to performing this Order shall comply with all provisions of the Resource Conservation and Recovery Act ("RCRA"), 42 U.S.C. §6901 et seq., the Toxic Substances Control Act ("TSCA"), 15 U.S.C. §2601 et seq., all regulations promulgated pursuant to both RCRA and TSCA, and all applicable state laws and regulations.

a. Respondent shall, prior to any off-Site shipment of hazardous substances from the Site to an out-of-state waste

management facility, provide written notification to the appropriate state environmental official in the receiving state and to EPA's Project Coordinator of such shipment of hazardous substances. However, the notification of shipments shall not apply to any such off-Site shipments when the total volume of such shipments does not exceed 10 cubic yards.

b. The notification shall be in writing, and shall include the following information, where available: (1) the name and location of the receiving facility to which the hazardous substances are to be shipped; (2) identification of permits and licenses held by the receiving facility for the treatment, storage and disposal of the hazardous wastes from the Site; (3) the type and quantity of the hazardous substances to be shipped; (4) the expected schedule for the shipment of the hazardous substances; and (5) the method of transportation. Respondent shall notify the receiving state of major changes in the shipment plan, such as a decision to ship the hazardous substances to another facility within the same state, or to a facility in another state.

c. The identity of the receiving facility and State to which any hazardous substances from the Site will be shipped will be determined by Respondent following the award of the contract for the RI/FS. Respondent shall provide all relevant information, including information under the categories noted in subparagraph a, above, on the off-Site shipments, as soon as practical after the award of the contract and before the hazardous substances are actually shipped.

VIII. NOTIFICATION AND REPORTING REQUIREMENTS

45. All reports and other documents submitted by Respondent to EPA (other than the monthly progress reports referred to below) which purport to document Respondent's compliance with the terms of this Consent Order shall be signed by a responsible corporate official(s) of the Respondent or by the Project Coordinator who has been delegated this responsibility by the Respondent and whose qualifications have been found by EPA to be acceptable, pursuant to paragraph 35 of this Order. Notwithstanding such a delegation of responsibility, Respondent shall remain liable for the proper performance of the work required by this Order. For purposes of this Consent Order, a responsible corporate official is an official who is in charge of a principal business function.

46. Until the termination of this Consent Order, Respondent shall prepare and provide EPA with written monthly progress reports which: (1) describe the actions which have been taken toward achieving compliance with this Consent Order during the previous month; (2) include all results of sampling, tests, modeling and all other data (including raw data) received or

generated by or on behalf of Respondent during the previous month in the implementation of the work required hereunder; (3) describe all actions, data and plans which are scheduled for the next two months and provide other information relating to the progress of work as is customary in the industry; (4) include information regarding percentage of completion, all delays encountered or anticipated that may affect the future schedule for completion of the work required hereunder, and a description of all efforts made to mitigate those delays or anticipated delays. These progress reports shall be submitted to EPA by Respondent by the fifteenth (15) day of every month following the effective date of this Consent Order.

47. Upon the occurrence of any event, during performance of the work required under this Order, that requires reporting to the National Response Center pursuant to Section 103 Of CERCLA, Respondent shall, within twenty-four (24) hours, orally notify the EPA Project Coordinator (or, in the event of the unavailability of the EPA Project Coordinator, the Chief of the Central New Jersey Remediation Section of the Emergency and Remedial Response Division of EPA Region II), in addition to the reporting required by Section 103 of CERCLA. Within twenty (20) days of the onset of such an event, Respondent shall furnish EPA with a written report setting forth the events which occurred and the measures taken, and to be taken, in response thereto.

48. All work plans, reports, notices and other documents required to be submitted to EPA under this Consent Order shall be sent by certified mail, return receipt requested, to the following addressees:

2 copies: (including 1 un-bound copy)	Chief, New Jersey Remediation Branch Emergency and Remedial Response Division United States Environmental Protection Agency 290 Broadway, 19th floor New York, New York 10007-1866 Attention: Ms. Grisell V. Díaz-Cotto Diamond Head Oil Superfund Site Project Coordinator
1 copy:	Chief, New Jersey Superfund Branch Office of Regional Counsel United States Environmental Protection Agency 290 Broadway, 17th floor New York, New York 10007-1866 Attention: Mr. _____, Diamond Head Oil Superfund Site Attorney
1 copies:	New Jersey Department of Environmental Protection Bureau of Federal Case Management Division of Responsible Party Site Remediation

Attn: Diamond Head Oil Case Manager
401 East State Street, Floor 5
P.O. Box 028
Trenton, New Jersey 08625-0028

49. Respondents shall give EPA at least fourteen (14) days advance notice of all field work or field activities to be performed by Respondent pursuant to this Consent Order.

IX. MODIFICATION OF THE WORK PLAN

50. If at any time during the RI/FS process, Respondent identifies a need for additional data, a memorandum documenting the need for additional data shall be submitted to the EPA Project Coordinator within twenty (20) days of identification. EPA in its discretion will determine whether the additional data will be collected by Respondent and whether it will be incorporated into reports and deliverables.

51. In the event of conditions posing an immediate threat to human health or welfare or the environment, Respondent shall notify EPA and NJDEP immediately. In the event of unanticipated or changed circumstances at the Site, Respondent shall notify the EPA Project Coordinator (or, in the event of the unavailability of the EPA Project Coordinator, the Chief of the Central New Jersey Remediation Section of the Emergency and Remedial Response Division of EPA Region II) by telephone within twenty-four (24) hours of discovery of the unanticipated or changed circumstances. In addition to the authorities in the NCP, in the event that EPA determines that the immediate threat or the unanticipated or changed circumstances warrant changes in the RI/FS Work Plan and/or FOP, EPA will modify or amend or direct Respondent to modify or amend the RI/FS Work Plan and/or FOP in writing accordingly. Respondent shall implement the RI/FS Work Plan and/or FOP as modified or amended.

52. EPA may determine that in addition to tasks defined in the initially-approved RI/FS Work Plan, other additional work may be necessary to accomplish the objectives of the RI/FS. EPA may require, pursuant to this Order, that the Respondent perform these response actions in addition to those required by the initially-approved RI/FS Work Plan, including any approved modifications, if EPA determines that such actions are necessary for a complete RI/FS. Subject to EPA resolution of any dispute pursuant to Section XVII, Respondent shall implement the additional tasks which EPA determines are necessary. The additional work shall be completed according to the standards, specifications and schedule set forth or approved by EPA in a written modification to the RI/FS Work Plan or written Work Plan supplement. EPA reserves the right to conduct the work itself at any point, to seek reimbursement for the costs associated with the work from Respondents, and/or to seek any other appropriate relief.

X. FINAL RI/FS, PROPOSED PLAN, PUBLIC COMMENT, RECORD OF DECISION, ADMINISTRATIVE RECORD

53. EPA retains the responsibility for the release to the public of the RI and FS reports. EPA retains responsibility for the preparation and release to the public of the proposed remedial action plan and record of decision in accordance with CERCLA and the NCP.

54. EPA will provide Respondent with the final RI and FS reports (to the extent that Respondent does not already have these reports), proposed remedial action plan, and Record of Decision.

55. EPA will assemble the administrative record file for selection of the remedial action. Respondent shall submit to EPA documents developed during the course of the RI/FS upon which selection of the remedial action may be based. Respondent shall provide copies of plans, task memoranda including documentation of field modifications, recommendations for further action, quality assurance memoranda and audits, raw data, field notes, laboratory analytical reports, and other reports. Respondent shall additionally submit any previous studies, conducted under state, local or other federal authorities relating to selection of the response action and all communications between Respondent and state, local or other federal authorities concerning selection of the response action.

XI. PROJECT COORDINATORS, OTHER PERSONNEL

56. EPA has designated the following individual as its Project Coordinator with respect to the Site:

Ms. Grisell V. Díaz-Cotto
Central New Jersey Remediation Section
Emergency and Remedial Response Division
U.S. Environmental Protection Agency
290 Broadway, 19th Floor
New York, NY 10007-1866
(212) 637-4430

No later than seven (7) days after the effective date of this Consent Order, Respondent shall select its own Project Coordinator and shall notify EPA in writing of the name, address, qualifications, job title and telephone number of that Project Coordinator. He or she shall have technical expertise sufficient to adequately oversee all aspects of the work contemplated by this Consent Order. Respondent's and EPA's Project Coordinators shall be responsible for overseeing the implementation of this Consent Order and shall coordinate communications between EPA and Respondent. EPA and Respondent may change their respective Project Coordinators. Such a change shall be accomplished by notifying the other party in writing at least ten (10) days prior

to the change where possible, and concurrently with the change or as soon thereafter as possible in the event that advance notification is not possible.

57. EPA's Project Coordinator shall have the authority lawfully vested in a Remedial Project Manager and On-Scene Coordinator by the NCP. In addition, EPA's Project Coordinator shall have the authority, consistent with the NCP, to halt any work required by this Consent Order, and to take any necessary response action when he/she determines that conditions at the Site may present an immediate endangerment to public health or welfare or the environment. The absence of the EPA Project Coordinator from the area under study pursuant to this Consent Order shall not be cause for the stoppage or delay of work.

58. All activities required of Respondent under the terms of this Consent Order shall be performed only by qualified persons possessing all necessary permits, licenses, and other authorizations required by applicable law.

XII. OVERSIGHT

59. During the implementation of the requirements of this Consent Order, Respondent and its contractors and subcontractors shall be available for such conferences and inspections with EPA as EPA may determine are necessary for EPA to adequately oversee the work being carried out and/or to be carried out.

60. Respondent and its employees, agents, contractors and consultants shall cooperate with EPA in its efforts to oversee Respondent's implementation of this Consent Order.

XIII. SAMPLING, ACCESS AND DATA AVAILABILITY/ADMISSIBILITY

61. If any area to which access is necessary to perform work under this Consent Order is owned in whole or in part by parties other than Respondent, Respondent shall obtain, or use its best efforts to obtain, access agreements from the present owner(s) within thirty (30) days of the effective date of this Consent Order. Such agreements shall provide access for EPA, its contractors and oversight officials, NJDEP and its contractors, and the Respondent or its authorized representatives, and agreements for such access shall specify that Respondent is not EPA's representative with respect to liability associated with Site activities. Copies of such agreements shall be provided to EPA upon request prior to Respondent's initiation of field activities. Respondent's best efforts shall include providing reasonable compensation to any property owner. If access agreements are not obtained within the time referenced above, Respondent shall immediately notify EPA of its failure to obtain access. EPA may, in its sole discretion, obtain access for Respondent, perform those tasks or activities with EPA

contractors, or terminate this Consent Order in the event that Respondent cannot obtain access agreements. In the event that EPA performs those tasks or activities with EPA contractors and does not terminate this Consent Order, Respondent shall reimburse EPA for all costs incurred in performing such activities and shall perform all other activities not requiring access to the given property. Respondent additionally shall integrate the results of any such tasks undertaken by EPA into its reports and deliverables. Furthermore, Respondent agrees to indemnify the United States as specified in paragraph 101 of this Consent Order. Respondent also shall reimburse EPA pursuant to paragraph 86 for all costs and attorney fees incurred by the United States in its efforts to obtain access for Respondent.

62. At all reasonable times, EPA and its authorized representatives shall have the authority to enter and freely move about all property at the Site and off-Site areas where work, if any, is being performed, for the purposes of inspecting conditions, activities, the results of activities, records, operating logs, and contracts related to the Site or Respondent and its contractor pursuant to this Consent Order; reviewing the progress of the Respondent in carrying out the terms of this Consent Order; conducting tests as EPA or its authorized representatives deem necessary; using a camera, sound recording device or other documentary type equipment; and verifying the data submitted to EPA by Respondent. Respondent agrees to provide EPA and its designated representatives with access to inspect and copy all records, files, photographs, documents, sampling and monitoring data, and other writings related to work undertaken in carrying out this Consent Order. All parties with access to the Site under this paragraph shall comply with all approved health and safety plans.

63. All data, records, photographs and other information created, maintained or received by Respondent or its agents, contractors or consultants in connection with implementation of the work under this Consent Order, including but not limited to contractual documents, quality assurance memoranda, raw data, field notes, laboratory analytical reports, invoices, receipts, work orders and disposal records, shall, without delay, be made available to EPA on request. EPA shall be permitted to copy all such documents and other items.

64. Upon request by EPA, or its designated representatives, Respondent shall provide EPA or its designated representatives with duplicate and/or split samples of any material sampled in connection with the implementation of this Consent Order, or allow EPA or its designated representatives to take such duplicate or split samples.

65. Respondent may assert a claim of business confidentiality under 40 C.F.R. § 2.203, covering part or all of the information submitted to EPA pursuant to the terms of this Consent Order,

contractors, or terminate this Consent Order in the event that Respondent cannot obtain access agreements. In the event that EPA performs those tasks or activities with EPA contractors and does not terminate this Consent Order, Respondent shall reimburse EPA for all costs incurred in performing such activities and shall perform all other activities not requiring access to the given property. Respondent additionally shall integrate the results of any such tasks undertaken by EPA into its reports and deliverables. Furthermore, Respondent agrees to indemnify the United States as specified in paragraph 101 of this Consent Order. Respondent also shall reimburse EPA pursuant to paragraph 86 for all costs and attorney fees incurred by the United States in its efforts to obtain access for Respondent.

62. At all reasonable times, EPA and its authorized representatives shall have the authority to enter and freely move about all property at the Site and off-Site areas where work, if any, is being performed, for the purposes of inspecting conditions, activities, the results of activities, records, operating logs, and contracts related to the Site or Respondent and its contractor pursuant to this Consent Order; reviewing the progress of the Respondent in carrying out the terms of this Consent Order; conducting tests as EPA or its authorized representatives deem necessary; using a camera, sound recording device or other documentary type equipment; and verifying the data submitted to EPA by Respondent. Respondent agrees to provide EPA and its designated representatives with access to inspect and copy all records, files, photographs, documents, sampling and monitoring data, and other writings related to work undertaken in carrying out this Consent Order. All parties with access to the Site under this paragraph shall comply with all approved health and safety plans.

63. All data, records, photographs and other information created, maintained or received by Respondent or its agents, contractors or consultants in connection with implementation of the work under this Consent Order, including but not limited to contractual documents, quality assurance memoranda, raw data, field notes, laboratory analytical reports, invoices, receipts, work orders and disposal records, shall, without delay, be made available to EPA on request. EPA shall be permitted to copy all such documents and other items.

64. Upon request by EPA, or its designated representatives, Respondent shall provide EPA or its designated representatives with duplicate and/or split samples of any material sampled in connection with the implementation of this Consent Order, or allow EPA or its designated representatives to take such duplicate or split samples.

65. Respondent may assert a claim of business confidentiality under 40 C.F.R. § 2.203, covering part or all of the information submitted to EPA pursuant to the terms of this Consent Order,

provided such claim is allowed by section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7). This claim shall be asserted in the manner described by 40 C.F.R. § 2.203(b) and substantiated at the time the claim is made. Information determined to be confidential by EPA will be given the protection specified in 40 C.F.R. Part 2. If no such claim accompanies the information when it is submitted to EPA, it may be made available to the public by EPA or State of New Jersey without further notice to Respondent. Respondent agrees not to assert confidentiality claims with respect to any data related to Site conditions, sampling, or monitoring.

66. Notwithstanding any other provision of this Consent Order, EPA hereby retains all of its information gathering, access and inspection authority under CERCLA, the Solid Waste Disposal Act, 42 U.S.C. §§ 6901-6991, and any other applicable statute or regulation.

67. In entering into this Consent Order, Respondent waives any objections to any data gathered, generated, or evaluated by EPA, NJDEP or Respondent in the performance or oversight of the work that has been verified according to the quality assurance/quality control (QA/QC) procedures required pursuant to this Consent Order. If Respondent objects to any other data relating to the RI/FS and which is submitted in a monthly progress report in accordance with paragraph 46 herein, Respondent shall submit to EPA a report that identifies and explains its objections, describes their views regarding the acceptable uses of the data, if any, and identifies any limitations to the use of the data. The report must be submitted to EPA within fifteen (15) days of the monthly progress report containing the data.

XIV. OTHER APPLICABLE LAWS

68. Respondent shall comply with all laws that are applicable when performing the RI/FS. No local, state, or federal permit shall be required for any portion of the work, including studies, required hereunder which is conducted entirely on-Site, where such work is carried out in compliance with Section 121 of CERCLA; however, Respondent must comply with the substantive requirements that would otherwise be included in such permits. For any work performed pursuant to this Consent Order which is not "on-site", as defined in Sections 300.5 and 300.400(e) of the NCP, Respondent shall obtain all permits necessary under applicable laws and shall submit timely applications and requests for any such permits. This Consent Order is not, nor shall it act as, a permit issued pursuant to any federal or state statute or regulation.

XV. RECORD PRESERVATION

69. All records and documents in Respondent's possession that relate in any way to the Site shall be preserved during the conduct of this Consent Order and for a minimum of ten (10) years

after commencement of construction of any remedial action which is selected following the completion of the RI/FS. Respondent shall acquire and retain copies of all documents that relate to the Site and are in the possession of its employees, agents, accountants, contractors, or attorneys. After this 10-year period, Respondent shall notify EPA at least ninety (90) days before the documents are scheduled to be destroyed. If EPA requests that the documents be saved, Respondent shall, at no cost to EPA, give the documents or copies of the documents to EPA.

XVI. COMMUNITY RELATIONS

70. Respondent shall cooperate with EPA in providing information relating to the work required hereunder to the public. To the extent requested by EPA, Respondent shall participate in the preparation of all appropriate information disseminated to the public and make presentations at, and participate in, public meetings which may be held or sponsored by EPA to explain activities at or concerning the Site.

XVII. DISPUTE RESOLUTION

71. Any significant dispute concerning activities or deliverables required under this Consent Order, for which dispute resolution has been expressly provided for herein shall be resolved as follows: if Respondent objects to an EPA notice of disapproval or determination made pursuant to this Consent Order, and if the given dispute is one for which dispute resolution has been expressly provided for herein, Respondent shall notify EPA's Project Coordinator, in writing, of its objections within fourteen (14) days of receipt of the disapproval notice or determination. Respondent's written objections shall define the dispute, state the basis of Respondent's objections, and be sent to EPA by certified mail, return receipt requested. EPA and Respondent then have an additional fourteen (14) days to reach agreement. If an agreement is not reached within the fourteen (14) days, Respondent may, within seven (7) days of the conclusion of the aforementioned 14-day period, request a determination by the Chief of the New Jersey Remediation Branch of the Emergency and Remedial Response Division, EPA Region II (hereinafter, the "Chief"). Such a request by Respondent shall be made in writing. The Chief's determination is EPA's final decision. Respondent shall proceed in accordance with EPA's final decision regarding the matter in dispute, regardless of whether Respondent agrees with the decision. If Respondent does not agree to perform or does not actually perform the work in accordance with EPA's final decision, EPA reserves the right in its sole discretion to conduct the work itself and seek reimbursement from the Respondent of the costs of that work, to seek enforcement of the decision, to seek stipulated penalties, and/or to seek any other appropriate relief.

72. Respondent is not relieved of its obligations to perform and conduct activities and submit deliverables on the schedules which are approved by EPA and applicable to the work required pursuant to this Consent Order, while a matter is pending in dispute resolution. The invocation of dispute resolution does not stay the accrual of stipulated penalties under this Consent Order.

XVIII. DELAY IN PERFORMANCE/STIPULATED PENALTIES

73. For each day that Respondent fails to comply with any of the requirements of this Consent Order, EPA may assess, and if so, Respondent shall pay stipulated penalties in accordance with the terms below. For purposes of this paragraph, the term "fail to comply" shall include failure by the Respondent to submit an original or revised deliverable within the time limits set forth in or established pursuant to this Order, failure to revise a deliverable to fully conform with EPA's comments, and submittal of an original deliverable which is of such poor quality as to not even qualify as a bona fide submission. Stipulated penalties begin to accrue on the day that performance is due or a violation occurs, and shall continue to accrue until the noncompliance is corrected, or until EPA notifies Respondent in writing that EPA is assuming responsibility for the portion of work for which penalties are accruing, whichever occurs earlier. Where a revised submission by Respondent is required by EPA, stipulated penalties shall continue to accrue until a deliverable satisfactory to EPA is produced. EPA will provide written notice of those violations for which EPA is assessing stipulated penalties; penalties shall, however, accrue from the day a violation commences. Payment shall be due within thirty (30) days of receipt of a demand letter from EPA, or within 30 days of completion of dispute resolution under Section XVII (should the dispute resolution procedures be timely invoked by Respondent with respect to an EPA assessment of stipulated penalties), whichever is later.

74. Respondent shall pay interest on any unpaid balance, which shall begin to accrue at the end of the 30-day period referred to in paragraph 73, above, at the rate established pursuant to Section 107(a) of CERCLA, 42 U.S.C. §9607(a).

75. Respondent shall make all payments by electronic funds transfer or by forwarding a cashier's or certified check to:

EPA - Region 2
Attn: Superfund Accounting
P.O. Box 360188M
Pittsburgh, PA 15251

Checks shall identify the name of the Site, the Site identification number (NJDXXXXXXXX), the account number (XX), and the index number of this Order. A copy of the check and of the

accompanying transmittal letter shall be sent to the first two addressees listed in paragraph 48 above.

Payment remitted via EFT shall be made to Mellon Bank, Pittsburgh, Pennsylvania as follows:

To make payment via EFT, Respondents shall provide the following information to its bank:

- Amount of Payment
- Title of Mellon Bank account to receive the payment: EPA
- Account code for Mellon Bank account receiving the payment: 9108544
- Mellon Bank ABA Routing Number: 043000261 - Name of Respondent
- Case Number : II-CERCLA-98-XXXXX
- Site/spill identifier: 02 - XX

Along with this information, Respondent shall instruct its bank to remit payment in the required amount via EFT to EPA's account with Mellon Bank.

To ensure that Respondent's payment is properly recorded, Respondent shall send a letter, within one week of the EFT, which references the date of the EFT, the payment amount, the name of the site, the case number and Respondent's name and address to the EPA addresses in paragraph 48 above and to:

Ron Gherardi
Chief, Financial Management Branch
US EPA
Region II
290 Broadway
New York, NY 10007

76. For all violations of this Order, stipulated penalties shall accrue as follows:

Period of Non-compliance	Penalty Per Violation Per Day
1st through 5th day	$500.00
6th through 10th day	$1,000.00
11th through 20th day	$2,250.00
21st through 28th day	$4,000.00
29th day and beyond	$5,250.00

77. Respondent may dispute EPA's right to the stated amount of penalties by invoking the dispute resolution procedures under Section XVII herein. Penalties shall accrue but need not be paid during the dispute resolution period. If Respondent does not prevail upon resolution, all penalties shall be due to EPA within 30 days of resolution of the dispute. If Respondent prevails upon resolution, no penalties shall be paid.

78. In the event that EPA requires that corrections to an interim deliverable be reflected in the next deliverable, rather than requiring that the interim deliverable be resubmitted, any stipulated penalties which accrue for that interim deliverable shall cease to accrue on the date of such decision by EPA.

79. The stipulated penalties provisions of this Order do not preclude EPA from pursuing any other remedies or sanctions which are available to EPA because of the Respondent's failure to comply with this Order, including but not limited to conduct of all or part of the RI/FS by EPA. Payment of stipulated penalties does not alter Respondent's obligation to complete performance under this Order.

XIX. FORCE MAJEURE

80. "Force majeure", for purposes of this Consent Order, is defined as any event arising from causes beyond the control of Respondent and of any entity controlling, controlled by, or under common control with Respondent, including its contractors and subcontractors, that delays the timely performance of any obligation under this Consent Order notwithstanding Respondent's best efforts to avoid the delay. The requirement that Respondent exercise "best efforts to avoid the delay" includes using best efforts to anticipate any potential force majeure event and best efforts to address the effects of any potential force majeure event (1) as it is occurring and (2) following the potential force majeure event, such that the delay is minimized to the greatest extent practicable. Examples of events that are not force majeure events include, but are not limited to, increased costs or expenses of any work to be performed under this Consent Order or the financial difficulty of Respondent to perform such work.

81. If any event occurs or has occurred that may delay the performance of any obligation under this Consent Order, whether or not caused by a force majeure event, Respondent shall notify by telephone the EPA Project Coordinator or, in his or her absence, the Chief of the Central New Jersey Remediation Section of the Emergency and Remedial Response Division, EPA Region II, within forty-eight (48) hours of when Respondent knew or should have known that the event might cause a delay. Within five (5) business days thereafter, Respondent shall provide in writing: the reasons for the delay; Respondent's rationale for interpreting the circumstances as constituting a force majeure event (should that be Respondent's claim); the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to mitigate the effect of the delay; and a statement as to whether, in the opinion of Respondent, such event may cause or contribute to an endangerment to public

health, welfare or the environment. Such written notice shall be accompanied by all available pertinent documentation including, but not limited to, third-party correspondence. Respondent shall exercise best efforts to avoid or minimize any delay and any effects of a delay. Failure to comply with the above requirements shall preclude Respondent from asserting any claim of force majeure.

82. If EPA agrees that the delay or anticipated delay is attributable to force majeure, the time for performance of the obligations under this Consent Order that are directly affected by the force majeure event will be extended for a period of time, determined by EPA, not to exceed the actual duration of the delay caused by the force majeure event. An extension of the time for performance of the obligation directly affected by the force majeure event shall not, of itself, extend the time for performance of any subsequent obligation.

83. If EPA does not agree that the delay or anticipated delay has been or will be caused by a force majeure event or if Respondent object to the length of the extension determined by EPA pursuant to paragraph 82, above, the issue shall be subject to the dispute resolution procedures set forth in Section XVII of this Consent Order. In order to qualify for a force majeure defense, Respondent shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a force majeure event, that the duration of the delay was or will be warranted under the circumstances, that Respondent did exercise or is exercising due diligence by using its best efforts to avoid and mitigate the effects of the delay, and that Respondent complied with the requirements of paragraph 81.

84. Should Respondent carry the burden set forth in paragraph 83, the delay at issue shall not be deemed a violation of the affected obligation of this Consent Order.

XX. REIMBURSEMENT

85. Within thirty (30) days of the effective date of this Order, Respondent shall pay $XXX,XXX to EPA in reimbursement of the costs incurred by EPA as of XXX XX, 1998. Respondent shall pay any additional costs incurred by EPA within 30 days of EPA's provision of a billing to Respondent for that additional amount. Respondent shall make such payments by cashier's or certified check made payable to the "Hazardous Substance Superfund."

86. Respondent hereby also agrees to reimburse EPA for all response costs, including oversight costs, which have been incurred and will be incurred by the EPA with respect to the RI/FS. EPA will periodically send billings to Respondent for the costs incurred by EPA. Those billings will be accompanied by a printout of cost data in EPA's financial management system and by

a calculation of EPA's indirect costs. EPA's costs may include, but are not limited to, costs incurred by the EPA in overseeing Respondent's implementation of the requirements of this Order and activities performed by the EPA as part of the RI/FS and community relations, including any costs incurred while obtaining access. Such costs will include both direct and indirect costs, including but not limited to, time and travel costs of EPA personnel and associated indirect costs, contractor costs, cooperative agreement costs, costs of compliance monitoring, including the collection and analysis of split samples, inspection of RI/FS activities, Site visits, discussions regarding disputes that may arise as a result of this Order, review and approval or disapproval of reports, costs of performing the Baseline Risk Assessment, and costs of redoing any of Respondent's tasks. Respondent shall, within thirty (30) days of receipt of each such billing, remit a cashier's or certified check for the amount of those costs, made payable to the "Hazardous Substance Superfund."

87. Respondent may invoke the Dispute Resolution procedures of Section XVII of this Consent Order with respect to payment demands submitted to Respondent by EPA under paragraph 86. However, Respondent agrees to limit any disputes concerning such costs to mathematical errors and the inclusion of costs which are inconsistent with the NCP or are outside the scope of this Consent Order. Respondent shall identify any contested costs and the basis of its objection. All undisputed costs shall be remitted by Respondent in accordance with the schedule set forth above. Disputed costs shall be paid by Respondent into an escrow account while the dispute is pending. Respondent bears the burden of establishing an EPA mathematical error or the inclusion of costs which are inconsistent with the NCP or are outside the scope of this Consent Order.

88. Each of the payments that Respondent is required to pay shall be made by electronic funds transfer, as described in paragraph 75 above, or be mailed to the following address:

EPA - Region II
Attn: Superfund Accounting
P.O. Box 360188M
Pittsburgh, PA 15251

Checks shall include the name of the Site, and the index number of this Consent Order. A copy of each check and of the accompanying transmittal letter shall be sent to the first two addresses listed in paragraph 48, above.

89. Respondent shall pay interest on any amounts overdue under paragraphs 85 and 86. Such interest shall begin to accrue on the first day that the respective payment is overdue. Interest shall accrue at the rate of interest on investments of the Hazardous

Substances Superfund, in accordance with Section 107(a) of CERCLA.

XXI. RESERVATIONS OF RIGHTS AND REIMBURSEMENT OF OTHER COSTS

90. EPA reserves the right to bring an action against Respondent (and/or any other responsible parties) under Section 107 of CERCLA for recovery of all response costs incurred by the United States at the Site that are not reimbursed by Respondent, including, but not limited to, oversight costs, any costs incurred in the event that EPA performs the RI/FS or any part thereof and any future costs incurred by the United States in connection with response activities conducted under CERCLA at the Site.

91. Nothing contained in this Order shall act as a bar to, a release of, a satisfaction of, or a waiver of any claim or cause of action which EPA has at present or which EPA may have in the future against any entity, including Respondent, on any matters relating to the Site.

a. EPA reserves the right to bring an action against Respondent to enforce the requirements of this Consent Order, to collect stipulated penalties assessed pursuant to Section XVIII of this Consent Order, and to seek penalties pursuant to Section 109 of CERCLA, 42 U.S.C. §9609, or any other applicable provision of law.

b. Nothing contained in this Order shall affect the right of EPA to enter into any Consent Decree, or to issue any other Orders unilaterally to Respondent (or to any other responsible parties for the Site) pursuant to CERCLA, or to initiate a judicial action to require the performance of any additional response actions which EPA determines are necessary for the Site.

92. Nothing in this Consent Order shall be construed to limit, in any way, EPA's response or enforcement authorities including, but not limited to, the right to seek injunctive relief, stipulated penalties, statutory penalties, and/or punitive damages.

a. Nothing contained in this Order shall be construed to mean that the Respondent is the only potentially responsible party with respect to the release and threatened release of hazardous substances at the Site.

b. Nothing in this Order constitutes a decision by EPA on pre-authorization or on any approval of funds under Section 111(a)(2) of CERCLA, 42 U.S.C. §9611(a)(2).

c. The Respondent waives any claim to payment under sections 106(b), 111, and 112 of CERCLA, 42 U.S.C. §§ 9606(b), 9611,

and 9612, against the United States or the Hazardous Substances Superfund arising out of any actions performed under the Order.

d. Nothing in this Order shall be deemed to limit any authority of the United States to take, direct, or order all appropriate action to protect human health and the environment, or to prevent, abate, or mitigate an actual or threatened release of hazardous substances on, at, or from the Site.

93. Following satisfaction of the requirements of this Consent Order, Respondent shall have resolved its liability to EPA for the work performed by Respondent pursuant to this Consent Order. Respondent is not released from liability, if any, for any response actions taken beyond the scope of this Consent Order regarding removals, other operable units, remedial design/remedial action of this operable unit, or activities arising pursuant to Section 121(c) of CERCLA.

XXII. DISCLAIMER

94. By signing and taking actions under this Consent Order, Respondent does not admit, adopt, accept, concede, or acknowledge EPA's Findings of Fact and Conclusions of Law contained herein. Respondent reserves the right to contest such Findings of Fact and Conclusions of Law in any proceeding regarding the Site other than an action brought by the United States, including EPA, to enforce this Order. Furthermore, the participation of Respondent in this Order shall not be considered an admission of liability and is not admissible in evidence against Respondent in any judicial or administrative proceeding other than a proceeding by the United States, including EPA, to enforce this Consent Order or a judgement relating to it. Except as otherwise provided in this Order, Respondent does not admit liability under CERCLA or any other statute or common law and any responsibility for response costs or damages thereunder, and does not, by signing this Order, waive any rights it may have. Respondent retains its right to assert claims against other potentially responsible parties at the Site. However, Respondent agrees not to contest the validity or the terms of this Consent Order in any action brought by the United States, including EPA, to enforce its terms.

XXIII. OTHER CLAIMS

95. In entering into this Consent Order, Respondent waives any right to seek reimbursement, under Section 106(b) of CERCLA. Respondent also waives any right to present a claim with respect to such costs under Section 111 or 112 of CERCLA or under any other provision of law for costs incurred in the performance of this Consent Order. This Consent Order does not constitute any

decision on preauthorization of funds under Section 111(a)(2) of CERCLA. Respondent further waives all other statutory and common law claims against EPA, including, but not limited to, contribution and counterclaims, relating to or arising out of conduct of the RI/FS or this Consent Order.

96. Nothing in this Consent Order shall constitute or be construed as a release from any claim, cause of action, or demand in law or equity against any "person," as that term is defined in Section 101(21) of CERCLA, not a signatory to this Consent Order for any liability it may have arising out of or relating in any way to the generation, storage, treatment, handling, transportation, release, or disposal of any hazardous substances, pollutants, or contaminants found at, taken to, or taken from the Site. Nothing herein shall constitute a finding that Respondent is the sole responsible party with respect to the release and threatened release of hazardous substances at or from the Site.

97. Respondent shall bear its own costs and attorney fees.

XXIV. FINANCIAL ASSURANCE, INSURANCE, AND INDEMNIFICATION

98. Respondent shall establish and maintain a financial instrument or trust account or other financial mechanism acceptable to EPA, funded sufficiently to perform the work and any other obligations required under this Consent Order, including a margin for cost overruns. Within fifteen (15) days after the effective date of this Consent Order, Respondent shall fund the financial instrument or trust account sufficiently to perform the work required under this Consent Order projected for the period beginning with the effective date of this Consent Order through the date of EPA's approval of Respondent's certification pursuant to paragraph 106, below.

99. If at any time the net worth of the financial instrument or trust account is insufficient to perform the work and other obligations under this Consent Order for the upcoming quarter, Respondent shall provide written notice to EPA within seven (7) days after the net worth of the financial instrument or trust account becomes insufficient. The written notice shall describe why the financial instrument or trust account is funded insufficiently and explain what actions have been or will be taken to fund the financial instrument or trust account adequately.

100. (a) Prior to commencement of any work under this Consent Order, Respondent shall provide evidence to EPA demonstrating that Respondent passes the financial test described in 40 C.F.R. §264.147(f) corresponding to liability coverage in the amount of ten million dollars.

(b) For the duration of this Consent Order, Respondent shall satisfy, and shall ensure that its contractors or subcontractors

decision on preauthorization of funds under Section 111(a)(2) of CERCLA. Respondent further waives all other statutory and common law claims against EPA, including, but not limited to, contribution and counterclaims, relating to or arising out of conduct of the RI/FS or this Consent Order.

96. Nothing in this Consent Order shall constitute or be construed as a release from any claim, cause of action, or demand in law or equity against any "person," as that term is defined in Section 101(21) of CERCLA, not a signatory to this Consent Order for any liability it may have arising out of or relating in any way to the generation, storage, treatment, handling, transportation, release, or disposal of any hazardous substances, pollutants, or contaminants found at, taken to, or taken from the Site. Nothing herein shall constitute a finding that Respondent is the sole responsible party with respect to the release and threatened release of hazardous substances at or from the Site.

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100. (a) Prior to commencement of any work under this Consent Order, Respondent shall provide evidence to EPA demonstrating that Respondent passes the financial test described in 40 C.F.R. §264.147(f) corresponding to liability coverage in the amount of ten million dollars.

(b) For the duration of this Consent Order, Respondent shall satisfy, and shall ensure that its contractors or subcontractors

satisfy, all applicable laws and regulations regarding the provision of employer's liability insurance and workmen's compensation insurance for all persons performing work on behalf of Respondent, in furtherance of this Consent Order.

101. Respondent agrees to indemnify and hold the United States Government, its agencies, departments, agents, and employees harmless from any and all claims or causes of action arising from or on account of acts or omissions of Respondent, its employees, agents, servants, receivers, successors, or assignees, or any other persons acting on behalf of Respondent, including, but not limited to, firms, corporations, parent, subsidiaries and contractors, in carrying out activities under this Consent Order. The United States Government or any agency or authorized representative thereof shall not be held as a party to any contract entered into by Respondent in carrying out activities under this Consent Order.

102. Neither the United States Government nor any agency thereof shall be liable for any injuries or damages to persons or property resulting from acts or omissions by Respondent or Respondent's officers, directors, employees, agents, contractors, consultants, receivers, trustees, successors or assigns in carrying out any action or activity pursuant to this Consent Order.

XXV. EFFECTIVE DATE AND SUBSEQUENT MODIFICATION

103. After issuance, this Consent Order shall be effective on the date of receipt of a copy hereof by counsel to Respondent.

104. This Consent Order may be amended by mutual agreement of EPA and Respondent. Amendments shall be in writing and shall be effective when signed by EPA. EPA Project Coordinators do not have the authority to sign amendments to this Consent Order.

105. No informal advice, guidance, suggestions, or comments by EPA regarding reports, plans, specifications, schedules, and any other writing submitted by Respondent will be construed as relieving Respondent of its obligation to obtain such formal approval as may be required by this Consent Order. Any deliverables, plans, technical memoranda, reports (other than progress reports), specifications, schedules and other documents required to be submitted to EPA pursuant to this Consent Order shall, upon approval by EPA, be deemed to be incorporated in and an enforceable part of this Consent Order.

XXVI. TERMINATION AND SATISFACTION

106. This Consent Order shall terminate when Respondent demonstrates in writing and certifies to the satisfaction of EPA that all activities required under this Consent Order - including any additional work, payment of costs in accordance with Section XX of this Consent Order, and payment of any stipulated penalties demanded by EPA - have been performed and EPA has approved the certification in writing. This notice shall not, however, terminate Respondent's obligation to comply with any of Respondent's remaining obligations under this Consent Order, including record preservation and the payment of any costs specified in Section XX of this Consent Order which have not yet, at that time, been paid by Respondent.

107. The certification referred to in paragraph 106, above, shall be signed by a responsible official(s) representing the Respondent. Such representative shall make the following attestation:

> "I certify that the information contained in or accompanying this certification is true, accurate, and complete."

For purposes of this Consent Order, a responsible official is a corporate official who is in charge of a principal business function.

U.S. ENVIRONMENTAL PROTECTION AGENCY

_____ _____

JEANNE FOX Date
Regional Administrator
U.S. Environmental Protection Agency
Region II

CONSENT

The Respondent identified below has had an opportunity to confer with EPA regarding this Consent Order. Respondent hereby consents to the issuance of this Consent Order and to its terms. The individual executing this Consent Order on behalf of Respondent certifies under penalty of perjury under the laws of the United States and of the State of Respondent's incorporation that he or she is fully and legally authorized to agree to the terms and conditions of this Consent Order and to bind Respondent thereto.

_____ _____

NAME OF RESPONDENT Date

_____

(signature)

_____

(typed name of signatory)

_____

(title of signatory)

APPENDIX 1
STATEMENT OF WORK FOR
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY AT THE
THE DIAMOND HEAD OIL REFINERY SUPERFUND SITE
KEARNY, HUDSON COUNTY, NEW JERSEY

A. INTRODUCTION

1. The purpose of this remedial investigation/feasibility study (RI/FS) is to investigate the nature and extent of contamination at the Diamond Head Oil Refinery Superfund Site (the Site) and develop and evaluate potential remedial alternatives. The RI and FS are interactive and may be conducted concurrently so that the data collected in the RI influences the development of remedial alternatives in the FS, which in turn affects the data needs and the scope of treatability studies, if needed.

2. The respondent will conduct this RI/FS (except for the baseline risk assessment component) and will produce a draft RI and FS report that are in accordance with this statement of work, the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (U.S. EPA, Office of Emergency and Remedial Response, October 1988), and any other guidance that EPA uses in conducting a RI/FS, as well as any additional requirements in the administrative order. The RI/FS Guidance describes the report format and the required report content. The respondent will furnish all necessary personnel, materials, and services needed, or incidental to, performing the RI/FS, except as otherwise specified in the administrative order.

3. At the completion of the RI/FS, EPA will be responsible for the selection of a site remedy and will document this selection in a Record of Decision (ROD). The remedial action alternative selected by EPA will meet the cleanup standards specified in CERCLA Section 121. That is, the selected remedial action will be protective of human health and the environment, will be in compliance with, or include a waiver of, applicable or relevant and appropriate requirements of other laws, will be cost-effective, will utilize permanent solutions and alternative treatment technologies or resource recovery technologies, to the maximum extent practicable, and will address the statutory preference for treatment as a principal element. The final RI/FS report, as adopted by EPA, and EPA's baseline risk assessment will, with the administrative record, form the basis for the selection of the site's remedy and will provide the information necessary to support the development of the ROD.

4. As specified in CERCLA Section 104(a)(1), as amended by SARA, EPA will provide oversight of the respondent's activities throughout the RI/FS. The respondent will support EPA's initiation and conduct of activities related to the implementation of oversight activities.

B. TASK 1 - SCOPING

1. The RI/FS is conducted to gather sufficient data and information necessary to characterize the nature and extent of contamination in order to support the selection of a site remedy that will reduce or eliminate risks to human health or the environment associated with contamination at the site.

2. The RI/FS achieves its objectives by determining the horizontal and vertical distribution and concentration of hazardous substances in the soil, sediment, surface and ground water, and in the air, and their association with the site.

3. Before planning RI/FS activities, all existing site data will be thoroughly compiled and reviewed by the Respondents. Specifically, this will include presently available data relating to the varieties and quantities of hazardous substances at the site, and past disposal practices. Data presently available includes the following New Jersey Department of Environmental Protection (NJDEP) and EPA sampling events: 1) soil and surface water samples collected at the site on May 1, 1985 by NJDEP; and 2) groundwater, surface water, sediment, surface soil, subsurface soil, liquid waste, and solid waste samples collected at the site on July 1 and 2, 1991 by EPA. The Respondents will refer to Table 2-1 of the RI/FS Guidance for a comprehensive list of data collection information sources. This information will be utilized in determining additional data needed to characterize the site, better define potential applicable or relevant and appropriate requirements (ARARs), and develop a range of preliminarily identified remedial alternatives. Data Quality Objectives (DQOs) will be established subject to EPA approval which specify the usefulness of existing data. Decisions on the necessary data and DQOs will be made by EPA.

4. The Respondents will conduct a site visit during the scoping phase of the project to assist in developing a conceptual understanding of sources and areas of contamination as well as potential exposure pathways and receptors at the site. During the site visit the Respondents should observe the site's physiography, hydrology, geology, and demographics, as well as natural resource, ecological and cultural features. This information will be utilized to better scope the project and to determine the extent of additional data necessary to characterize the site, better define potential ARARs, and narrow the range of preliminarily identified remedial alternatives.

5. Once the Respondents have collected and analyzed existing data and conducted a site visit, the specific project scope will be planned. Project planning activities include those tasks described below as well as identifying data needs, developing a work plan, designing a data collection program, and identifying health and safety protocols. The Respondents will meet with EPA regarding the following activities before the drafting of the

RI/FS work plan, sampling and analysis plan, and site health and safety plan.

a. RI/FS Work Plan (2.3.1)

i. The Respondents will submit a RI/FS work plan and a field operations plan. The field operations plan shall consist of a field sampling and analysis plan, a Quality Assurance Project Plan, and a health and safety plan. The RI/FS work plan and field operations plan must be reviewed and approved by EPA prior to the initiation of field activities.

ii. The work plan should be developed in conjunction with the field operations plan. The work plan will include a comprehensive description of the work to be performed, including the methodologies to be utilized, as well as a corresponding schedule for completion. The schedule shall provide for completion of the RI/FS within 12 months of EPA approval. In addition, the work plan must include the rationale for performing the required activities. Specifically, the work plan will present a statement of the problem(s) and potential problem(s) posed by the site and the objectives of the RI/FS. Furthermore, the plan will include a site background summary setting for the site description including the geographic location of the site, and to the extent possible, a description of the site's physiography, hydrology, geology, demographics, ecological, cultural and natural resource features; a synopsis of the site history and a description of previous responses that have been conducted at the site by local, state, federal, or private parties; a summary of the existing data in terms of physical and chemical characteristics of the contaminants identified, and their distribution among the environmental media at the site.

iii. The major part of the work plan is a detailed description of the tasks to be performed, information needed for each task and for EPA's baseline risk assessment, information to be produced during and at the conclusion of each task, and a description of the work products that will be submitted to EPA. This includes the deliverables set forth in the remainder of this statement of work; a schedule for each of the required activities which is consistent with the RI/FS guidance; and a project management plan, including a data management plan (e.g., requirements for compatibility with EPA's Geographic Information System (GIS), minimum data requirements, data format and backup data management), monthly reports to EPA and meetings and presentations to EPA at the conclusion of each major phase of the RI/FS. The Respondents will refer to Appendix B of the RI/FS Guidance for a comprehensive description of the contents of the required work plan. Because of the unknown details of the site and iterative nature of the RI/FS, additional data requirements and analyses may be identified throughout the process. The Respondents will submit a technical memorandum documenting the need for additional data, and identifying the DQOs whenever such

requirements are identified. In any event, the Respondents are responsible for fulfilling additional data and analysis needs identified by EPA consistent with the general scope and objectives of this RI/FS.

iv. The Respondents will prepare a field sampling and analysis plan (FSAP) to ensure that sample collection and analytical activities are conducted in accordance with technically acceptable protocols and that the data meet DQOs. The FSAP provides a mechanism for planning field activities and consists of a field sampling and analysis plan (FSAP) and a quality assurance project plan (QAPP).

v. The FSAP will define in detail the sampling and data-gathering methods that will be used on the project. It will include sampling objectives, sample location and frequency, sampling equipment and procedures, and sample handling and analysis. The QAPP will describe the project objectives and organization, functional activities, and quality assurance and quality control (QA/QC) protocols that will be used to achieve the desired DQOs. The DQOs will at a minimum reflect use of analytical methods to identifying contamination and remediating contamination consistent with the levels for remedial action objectives identified in the National Contingency Plan. In addition, the QAPP will address sampling procedures, sample custody, analytical procedures, and data reduction, validation, reporting and personnel qualifications. For example, EPA encourages the use of field screening techniques that can provide useful information on the concentration and extent of contamination of PCB's and the need for further laboratory analyses. Field personnel should be available for EPA QA/QC training and orientation where applicable. The Respondents will demonstrate, in advance to EPA's satisfaction, that each laboratory it may use is qualified to conduct the proposed work. This includes use of methods and analytical protocols for the chemicals of concern in the media of interest within detection and quantification limits consistent with both QA/QC procedures and DQOs approved in the QAPP for the site by EPA. In order to obtain an accurate identification and quantification of volatile organic contamination in soil, the recently adopted methanol preservation method at N.J.A.C. 7:26E-2.1(a)4 must be used. The laboratory must have and follow an approved QA program. If a laboratory not in the Contract Laboratory Program (CLP) is selected, methods consistent with CLP methods that would be used at this site for the purposes proposed and QA/QC procedures approved by EPA will be used. If the laboratory is not in the CLP program, a laboratory QA program must be submitted for EPA review and approval. EPA may require that the Respondents submit detailed information to demonstrate that the laboratory is qualified to conduct the work, including information on personnel qualifications, equipment and material specifications. The Respondents will provide assurances that EPA has access to

laboratory personnel, equipment and records for sample collection, transportation and analysis.

b. Site Health and Safety Plan (2.3.3)

A health and safety plan will be prepared in conformance with the Respondents' health and safety program, and in compliance with OSHA regulations and protocols. The health and safety plan will include the elements described in the RI/FS Guidance, such as a health and safety risk analysis, a description of monitoring and personal protective equipment, medical monitoring, and site control.

C. TASK 2 - COMMUNITY RELATIONS

The development and implementation of community relations activities are the responsibility of EPA. The critical community relations planning steps performed by EPA include conducting community relations plan. Although implementation of the community relations plan is the responsibility of EPA, the Respondents may assist by providing information regarding the site's history, participating in public meetings, or by preparing fact sheets for distribution to the general public. EPA will prepare baseline risk assessment memoranda which will summarize the toxicity assessment and components of the baseline risk assessment. EPA will make this memoranda available to all interested parties for comment and place them in the Administrative Record. (EPA is not required, however, to formally respond to significant comments except during the formal public comment period on the proposed plan.) In addition, the Respondents may establish a community information repository, at or near the site, to house one copy of the administrative record. The extent of PRP involvement in community relations activities is left to the discretion of EPA. The Respondents' community relations responsibilities, if any, are specified in the community relations plan. All PRP-conducted community relations activities will be subject to oversight by EPA.

D. TASK 3 - SITE CHARACTERIZATION (RI/FS Guidance, Chapter 3)

1. As part of the RI, the Respondents will perform the activities described in this task, including the preparation of a site characterization summary and RI report. The overall objective of site characterization is to describe areas of a site that may pose a threat to human health or the environment. This is accomplished by first determining a site's physiography, geology, and hydrology. Surface and subsurface pathways of migration will be defined. The Respondents will identify the sources of contamination and define the nature, extent, and

volume of the sources of contamination, including their physical and chemical constitutes as well as their concentrations at incremental locations to background in the affected media. The Respondents will also investigate the extent of migration of this contamination, including building interiors, as well as its volume and any changes in its physical or chemical characteristics, to provide for a comprehensive understanding of the nature and extent of contamination at the site. Using this information, contaminant fate and transport is then determined and projected.

2. During this phase of the RI/FS, the work plan, FSAP, QAPP, and health and safety plan are implemented. Field data are collected and analyzed to provide the information required to accomplish the objectives of the study. The Respondents will notify EPA at least two weeks in advance of the field work regarding the planned dates for field activities, including ecological field surveys, field lay out of the sampling grid, excavation, installation of wells, initiating sampling, installation and calibration of equipment, pump tests, and initiation of analysis and other field investigation activities. The Respondents will demonstrate that the laboratory and type of laboratory analyses that will be utilized during site characterization meets the specific QA/QC requirements and the DQOS of the site investigation as specified in the FOP. In view of the unknown site conditions, activities are often iterative, and to satisfy the objectives of the RI/FS it may be necessary for the Respondents to modify the work specified in the initial work plan. In addition to the deliverables below, the Respondents will provide a monthly progress report and participate in meetings at major points in the RI/FS.

a. Field Investigation (3.2)

The field investigation includes the gathering of data to define site physical and biological characteristics, sources of contamination, and the nature and extent of contamination at the site. These activities will be performed by the Respondents in accordance with the RI/FS work plan and FOP. At a minimum, this shall address the following:

i. Implement and document field support activities (3.2.1)

The Respondents will initiate field support activities following approval of the RI/FS work plan and FOP. Field support activities may include scheduling, and procuring equipment, office space, laboratory services, and/or contractors. The Respondents may initiate other time critical field support activities, such as obtaining access to the site, prior to approval of the RI/FS work plan and FOP. The Respondents will provide EPA with reasonable notice prior to initiating field support activities so that EPA may adequately schedule oversight

tasks. The Respondents will also notify EPA in writing upon completion of field support activities.

ii. Investigate and define site physical and biological characteristics (3.2.2)

The Respondents will collect data on the physical and biological characteristics of the site and its surrounding areas including the physical physiography, geology, and hydrology, and specific physical characteristics identified in the work plan. This information will be ascertained through a combination of physical measurements, observations, and sampling efforts and will be utilized to define potential transport pathways and human and ecological receptor populations. In defining the site's physical characteristics the Respondents will also obtain sufficient engineering data (such as pumping characteristics) for the projection of contaminant fate and transport, and development and screening of remedial action alternatives, including information to assess treatment technologies.

iii. Define sources of contamination (3.2.3)

The Respondents will locate each source of contamination. For each location, the areal extent and depth of contamination will be determined by sampling at incremental depths on a sampling grid. The physical characteristics and chemical constituents and their concentrations will be determined for all known and discovered sources of contamination. The Respondents shall conduct sufficient sampling to define the boundaries of the contaminant sources to the level established in the QA/QC plan and DQOs.

Defining the source of contamination will include analyzing the potential for contaminant release (e.g., long term leaching from soil), contaminant mobility and persistence, and characteristics important for evaluating remedial actions, including information to assess treatment technologies.

iv. Describe the nature and extent of contamination (3.2.4)

The Respondents will gather information to describe the nature and extent of contamination as a final step during the field investigation. To describe the nature and extent of contamination, the Respondents will utilize the information on site physical and biological characteristics and sources of contamination to give a preliminary estimate of the contaminants that may have migrated. The Respondents will then implement an iterative monitoring program and any study program identified in the RI/FS work plan or FOP such that by using analytical techniques sufficient to detect and quantify the concentration of contaminants, the migration of contaminants through the various media at site can be determined. In addition, the Respondents will gather data for calculations of contaminant fate and

transport. This process is continued until the area and depth of contamination are known to the level of contamination established in the QA/QC plan and DQOs. EPA will use the information on the nature and extent of contamination to determine the level of risk presented by the site. Respondents will use this information to help to determine aspects of the appropriate remedial action alternatives to be evaluated.

b. Data Analysis (3.4)

Evaluate site characteristics (3.4.1)

The Respondents will analyze and evaluate the data to describe: (1) site physical and biological characteristics, (2) contaminant source characteristics, (3) nature and extent of contamination and (4) contaminant fate and transport. Results of the site physical characteristics, source characteristics, and extent of contamination analyses are utilized in the analysis of contaminant fate and transport. The evaluation will include the actual and potential magnitude of releases from the sources, and horizontal and vertical spread of contamination as well as mobility and persistence of contaminants. Where modeling is appropriate, such models shall be identified to EPA in a technical memorandum prior to their use. All data and programming, including any proprietary programs, shall be made available to EPA together with a sensitivity analysis. The RI data shall be presented in a format (i.e., WordPerfect version 6.0 or latest on 3.5" computer disk(s)) to facilitate EPA's preparation of the baseline risk assessment. The Respondents shall agree to discuss and then collect any data gaps identified by the EPA that is needed to complete the baseline risk assessment. (See "Guidance for Data Useability in Risk Assessment - OSWER Directive # 9285.7- 05 - October 1990.) Also, this evaluation shall include any information relevant to site characteristics necessary for evaluation of the need for remedial action in the baseline risk assessment and for the development and evaluation of remedial alternatives. (See Risk Evaluation of Remedial Alternatives (Part C) - OSWER Directive 9285.7-01C - December 1991.) Analysis of data collected for site characterization will meet the DQOS developed in the QA/QC plan stated in the FOP (or revised during the RI).

c. Data Management Procedures (3.5)

The Respondents will consistently document the quality and validity of field and laboratory data compiled during the RI.

i. Document field activities (3.5.1)

Information gathered during site characterization will be consistently documented and adequately recorded by the Respondents in well maintained field logs and laboratory reports. The method(s) of documentation must be specified in the work plan

and/or the FOP. Field logs must be utilized to document observations, measurements, and significant events that have occurred during field activities. Laboratory reports must document sample custody, analytical responsibility, analytical results, adherence to prescribed protocols, nonconformity events, corrective measures, and/or data deficiencies.

ii. Maintain sample management and tracking (3.5.2; 3.5.3.)

The Respondents will maintain field reports, sample shipment records analytical results, and QA/QC reports to ensure that only validated analytical data are reported and utilized in the evaluation of remedial alternatives. Analytical results developed under the work plan will not be included in any site characterization reports unless accompanied by or cross-referenced to a corresponding QA/QC report. In addition, the Respondents will establish a data security system to safeguard chain-of custody forms and other project records to prevent loss, damage, or alteration of project documentation.

d. Site Characterization Deliverables (3.6)

The Respondents will prepare the preliminary site characterization summary and the remedial investigation report.

Preliminary Site Characterization Summary(3.6.2)

After completing field sampling and analysis, the Respondents will prepare a concise characterization summary. This summary will review the investigative activities that have taken place, and describe and display site data documenting the location and characteristics of surface and subsurface feature and contamination at the site including the affected medium, types, location types, physical state, concentration of contaminants and quantity. In addition, the location, dimensions, physical condition and varying concentrations of each contaminant throughout each source and the extent of contaminant migration through each of the affected media will be documented. The site characterization summary will provide EPA with a preliminary reference for developing the risk assessment, and evaluating the development and screening of remedial alternatives and the refinement and identification of ARARs.

E. TASK 4 - IDENTIFICATION OF CANDIDATE TECHNOLOGIES (4.2)

The Respondents will identify in a technical memorandum, subject to EPA's review and approval, candidate technologies for a treatability studies program. The memorandum will be submitted after the last set of analytical results collected during the RI have been validated. The listing of candidate technologies will cover the range of technologies required for alternatives analysis (Task 8.2). The specific data requirements for the testing program will be determined and refined during site

characterization and the development and screening of remedial alternatives (Tasks 3 and 8, respectively).

F. TASK 5 - TREATABILITY STUDIES; AS NECESSARY

Treatability testing will be performed by the Respondents, at EPA's request, to assist in the detailed analysis of alternatives. In addition, if applicable, testing results and results and operating conditions will be used in the detailed design of the selected remedial technology. The following activities will be performed by the Respondents.

i. Conduct literature survey and determine the need for treatability testing (4.2.2)

The Respondents will conduct a literature survey to gather information on performance, relative costs, applicability, removal efficiencies, operation and maintenance (O&M) requirements, and implementability of candidate technologies. If practical candidate technologies have not been sufficiently demonstrated, or cannot be adequately evaluated, or cannot be adequately evaluated for this site on the basis of available information, treatability testing will be conducted. Where it is determined by EPA that treatability testing is required, and unless the Respondents can demonstrate to EPA's satisfaction that they are not needed, the Respondents will submit a statement of work to EPA outlining the steps and data necessary to evaluate and initiate the treatability testing program.

ii. Evaluate treatability studies (4.2.3)

Once a decision has been made to perform treatability studies, the Respondents and EPA will decide on the type of treatability testing to use (e.g., bench versus pilot). Because of the time required to design, fabricate, and install pilot scale equipment as well as perform testing for various operating conditions, the decision to perform pilot testing should be made as early in the process as possible or minimize potential delays of the FS. To assure that a treatability testing program is completed on time, and with accurate results, the Respondents will either submit a separate treatability testing work plan or an amendment to the original site work plan EPA review and approval.

iii. Treatability Testing and Deliverables (4.3)

The deliverables that are required, in addition to the memorandum identifying candidate technologies, where treatability testing is conducted include a work plan, a sampling and analysis plan, and a final treatability evaluation report. EPA may also require a treatability study and safety plan, where appropriate.

iv. Treatability testing work plan (4.3.2)

The Respondents will prepare a treatability testing work plan or amendment to the original site work plan for EPA review and approval describing the site background, remedial technology(ies) to be tested, test objectives, experimental procedures, treatability conditions to be tested, measurements of performance, analytical methods, data management and analysis, health and safety, and residual waste management. The DQOs for treatability testing should be documented as well. If pilot-scale treatability testing is to be performed, the pilot-scale work plan will describe pilot plant installation and start-up, pilot plant operation and maintenance procedures, operating conditions to be tested, a sampling plan to determine pilot plant performance, and a detailed health and safety plan. If testing is to be performed off-site, the Respondents will address all necessary permitting requirements to the satisfaction of appropriate authorities.

v. Treatability study FOP(4.3.3)

If the original QAPP or FASP is not adequate for defining the activities to be performed during the treatability test, a separate treatability study FOP or amendment to the original site FOP will be prepared by the Respondents for EPA review and approval. Task 1 of this statement of work provides additional information on the requirements of the FOP.

vi. Treatability study health and safety plan (4.3.4)

If the original health and safety plan is not adequate for defining the defining the activities to be performed during the treatment tests, a separate or amended health and safety plan will be developed by the Respondents. Task 1 of this statement of work provides additional information on the requirements of the health and safety plan. EPA does not "approve" the treatability study health and safety plan.

vii. Treatability study evaluation report (4.3.5)

Following completion of treatability testing, the Respondents will analyze and interpret the testing results in a technical report to EPA. Depending on the sequences of activities, this report may be a part of the RI/FS report or a separate deliverable. The report will evaluate each technology's effectiveness, implementability, cost and actual results as compared with predicted results as compared with predicted results. The report will also evaluate full scale application of the technology, including a sensitivity analysis identifying the key parameters affecting full-scale operation.

G. TASK 6 - EPA's BASELINE RISK ASSESSMENT

EPA will prepare a Baseline Risk assessment for the Site which shall be incorporated by the Respondents into the RI. To the extent requested by EPA, Respondents shall provide the information needed for EPA's risk assessment (Task 3).

H. TASK 7 - REMEDIAL INVESTIGATION REPORT

The Respondents will prepare and submit a draft RI report to EPA for review and approval. This report shall summarize results of field activities to characterize the site, sources of contamination and the fate and transport of contaminants. The Respondents will refer to the RI/FS Guidance for an outline of the report format and contents. Following comment by EPA, the Respondents will prepare a final RI report which satisfactorily addresses EPA's comments.

I. TASK 8 - DEVELOPMENT AND SCREENING OF REMEDIAL ALTERNATIVES

The development and screening of remedial alternatives is performed to develop an appropriate range of waste management options that will be evaluated. This range of alternatives should include options in which treatment is used to reduce the toxicity, mobility, or volume of wastes, but varying in the types of treatment, the amount treated, and the manner in which long-term residuals or untreated wastes are managed; options involving containment with little or no treatment; options involving both treatment and containment; and a no-action alternative. The following activities will be performed as a function of the development and screening of remedial alternatives.

1. Development and Screening of Remedial Alternatives(5.2)

The Respondents will begin to develop and evaluate a range of appropriate waste management options that a minimum ensure protection of human health and the environment, concurrent with the RI site characterization task.

i. Develop general response action(5.2.2)

The Respondents will develop general actions for each medium of interest defining containment, treatment, excavation, pumping, or other actions, singly or in combination, to satisfy the remedial action objectives.

ii. Identify areas or volumes of media(5.2.3)

The Respondents will identify areas or volumes of media to which general response actions may apply, taking into account requirements for protectiveness as identified in the remedial action objectives. The chemical and physical characterization of

the site will also be taken into account.

iii. Assemble and document alternatives(5.2.6)

The Respondents will assemble selected representative technologies into alternatives for each affected medium or operable unit.

Together, all of the alternatives will represent a range of treatment and containment combinations that will address either the site or the operable unit as a whole. A summary of the assembled alternatives and their related action-specific ARARS will be prepared by the Respondents for inclusion in a technical memorandum.

The reasons for eliminating alternatives during the preliminary screening process must be specified.

iv. Refine alternatives (5.2.7)

The Respondents will refine the remedial alternatives to identify contaminant volume addressed by the proposed process and sizing of critical unit operations as necessary. Sufficient information will be collected for an adequate comparison of alternatives. PRGs for each chemical in each medium will also be modified as necessary to incorporate any new risk assessment information presented in EPA's baseline risk assessment report. Additionally, action-specific ARARs will be updated as the remedial alternatives are refined.

v. Conduct and document screening evaluation of each alternative(5.2.8)

The Respondents may perform a final screening process based on short and long term aspects of effectiveness, implementability, and relative cost. Generally, this screening process is only necessary when there are many feasible alternatives available for detailed analysis. If necessary, the screening of alternatives will be conducted to assure that only the alternatives with the most favorable composite evaluation of all factors are retained for further analysis. As appropriate, the screening will preserve the range of treatment and containment alternatives that was initially developed. The range of remaining alternatives will include options that use treatment technologies and permanent solutions to the maximum extent practicable. The Respondents will make a presentation to EPA and the State, identifying the remedial action objectives and summarizing the development and preliminary screening of remedial alternatives.

2. Alternatives Development and Screening Deliverables(5.3)

The Respondents will prepare a technical memorandum summarizing the work performed in and the results of each task above, including an alternatives array summary. The memorandum

will also summarize the reasoning employed in screening, arraying alternatives that remain after screening, and identifying the action-specific ARARs for the alternatives that remain after screening. These will be modified by the Respondents if required by EPA's comments to assure identification of a complete and appropriate range of viable alternatives to be considered in the detailed analysis. This deliverable will document the methods, rationale, and results of the alternatives screening process.

3. Detailed analysis of remedial alternatives

The detailed analysis will be conducted by the Respondents to provide EPA with the information needed to allow for the selection of a site remedy. This analysis is the final task to be performed by Respondents during the FS.

i. Detailed Analysis of Alternatives (6.2)

The Respondents will conduct a detailed analysis of alternatives which will consist of an analysis of each option against a set of nine evaluation criteria and a comparative analysis of all options using the same evaluation criteria as a basis for comparison.

ii. Apply nine criteria and document analysis (6.2.1-6.2.4)

The Respondents will apply nine evaluation criteria to the assembled remedial alternatives to ensure that the selected remedial alternative will be protective of human health and the environment; will be in compliance with, or include a waiver of, ARARS; will be cost-effective; will utilized permanent solutions and alternative treatment technologies, or resource recovery technologies, to the maximum extent practicable; and will address the statutory preference for treatment as a principal element. The evaluation criteria include: (1) overall protection of human health and the environment; (2) compliance with ARARs; (3) long-term effectiveness and permanence; (4) reduction of toxicity, mobility, or volume; (5) short-term effectiveness; (6) implementability; (7) cost; (8) state (or support agency) acceptance; and (9) community acceptance.

(Note: criteria 8 and 9 are considered after the RI/FS report has been released to the general public.) For each alternative the respondents should provide: (1) a description of the alternative that outlines the waste management strategy involved and identifies the key ARARs associated which each alternative, and (2) a discussion of the individual criterion assessment. If the Respondents does not have direct input on criteria (8) state (or support agency) acceptance and (9) community acceptance, these will be addressed by EPA.

iii. Compare alternatives against each other and document the comparison of alternatives (6.2.5; 6.2.6)

The Respondents will perform a comparative analysis between the remedial alternatives. That is, each alternative will be compared against the others using the evaluation criteria as a basis of comparison. Identification and selection of the preferred alternative are reserved by EPA. The Respondents will prepare a technical memorandum summarizing the results of the comparative analysis.

iv. Detailed Analysis Deliverables(6.3)

In addition to the technical memorandum summarizing the results of the comparative analysis, the respondents will submit a draft FS report to EPA for review and approval. Once EPA's comments have been addressed by the Respondents to EPA's satisfaction, the final FS report may be bound with the final RI report.

J. TASK 9 - FEASIBILITY STUDY REPORT (6.4)

The Respondents will prepare a draft FS report for EPA review and comment. This report, as ultimately adopted or amended by EPA, provides a basis for remedy selection by EPA and documents the development and analysis of remedial alternatives. The Respondents will refer to the RI/FS Guidance for an outline of the report format and the required report content. The Respondents will prepare a final FS report which satisfactorily addresses EPA's comments.

REFERENCES FOR CITATION

The following list, although not comprehensive, comprises many of the regulations and guidance documents that apply to the RI/FS process:

The (revised) National Contingency Plan

"Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA," U.S. EPA, Office of Emergency and Remedial Response, October 1988, OSWER Directive No. 9355.3-01

"Interim Guidance on Potentially Responsible Party Participation in Remedial Investigation and Feasibility Studies," U.S. EPA, Office of Waste Programs Enforcement, Appendix A to OSWER Directive No. 9355.3-01.

"Guidance on Oversight of Potentially Responsible Party Remedial Investigations and Feasibility Studies," U.S. EPA, Office of Waste Programs Enforcement, OSWER Directive No. 9835.3

"A Compendium of Superfund Field Operations Methods," Two Volumes, U.S. EPA,. Office of Emergency and Remedial Response, EPA/540/P-87/001a, August 1987, OSWER Directive No. 9355.0-14.

"EPA NEIC Policies and Procedures Manual," May 1978, revised November 1984, EPA-330/9-78-001-R.

"Data Quality Objectives for Remedial Response Activities, " U.S. EPA, Office of Emergency and Remedial Response and Office of Waste Programs Enforcement, EPA/540/G-87/003, March 1987, OSWER Directive No. 9335.0-7B.

"Guidelines and Specifications for Preparing Quality Assurance Project Plans," U.S. EPA, Office of Research and Development, Cincinnati, OH, QAMS-004/80, December 29,1980.

"Interim Guidelines and Specifications for Quality Assurance Project Plans," U.S. EPA, Office of Emergency and Remedial Response, QAMS-005/80, December 1980.

"Users Guide to the EPA Contract Laboratory," U.S. EPA, Sample Management Office, August 1982.

"Interim Guidance with Applicable or Relevant and Appropriate Requirements,' U.S. EPA, Office of Emergency and Remedial Response, July 9, 1987, OSWER Directive No. 9234.0-05.

"CERCLA Compliance with Other Laws Manual," Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, August 1988 (draft), OSWER Directive No. 9234.1-01 and -02.

"Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites," U.S." U.S. EPA, Office of Emergency and Remedial Response, (draft), OSWER Directive No. 9283.1-2.

"Draft Guidance on Superfund Decision Documents," U.S. EPA, Office of Emergency and Remedial Response, March 1988, OSWER Directive No. 9355.-02

"Risk Assessment Guidance for Superfund - Volume I Human Health Evaluation Manual" (Part A), EPA/540/1-89/002

"Risk Assessment Guidance for Superfund - Volume I Human Health Evaluation Manual" (Part B), EPA/540/R-92/003

"Risk Assessment Guidance for Superfund - Volume II Environmental Evaluation Manual," March 1989, EPA/540/1-89/ 001

"Guidance for Data Useability in Risk Assessment," October, 1990, EPA/540/G-90/008

"Performance of Risk Assessments in Remedial Investigation/Feasibility Studies (RI/FSs) Conducted by Potentially Responsible Parties (PRPs)," August 28, 1990, OSWER Directive No.9835.15.

"Risk Evaluation of Remedial Alternatives" (Part C), December 1991, OSWER Directive 9285.7-01C.

"Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions," April 22, 1991, OSWER Directive No. 9355.0-30.

"Supplemental Guidance to RAGS: Calculating the Concentration Term," May 1992, OSWER Directive 9285.7-081.

"Health and Safety Requirements of Employed in Field Activities," U.S. EPA, Office of Emergency and Remedial Response, July 12, 1981, EPA Order No. 1440.2.

OSHA Regulations in 29 CFR 1910.120 (Federal Register 45654, December 19, 1986).

"Interim Guidance on Administrative Records for Selection of CERCLA Response Actions," U.S. EPA, Office of Waste Programs Enforcement, March 1, 1989, OSWER Directive No. 9833.3A.

"Community Relations in Superfund: A Handbook," U.S. EPA, Office of Emergency and Remedial Response, June 1988, OSWER Directive No. 9230.0#3B.

"Community Relations During Enforcement Activities And Development of the Administrative Record," U.S. EPA, Office of Programs Enforcement, November 1988, OSWER Directive No. 9836.0-1a.